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ABSTRACT

This handbook was written to provide an overview of rapidly-changing energy fields and occupations. The first of five sections contains descriptions of over sixty separate fields organized into the following four areas of energy-related work: development, production, distribution, conservation. The second section contains an outline and descriptions of more than sixty separate job areas including the education necessary and the general prospects for these jobs in New Jersey. The third section provides information on self-assessment of interests and abilities and an interest survey. A review of strategies for reaching individual career goals is presented in section 4, and section 5 identifies energy-related programs in New Jersey. (BM)

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ENERGY OCCUPATIONS HANDBOOK

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ENERGY OCCUPATIONS HANDBOOK

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INTRODUCTION

The rapid changes brought about by the industrial revolution were, in part, catalyzed by an abundance of relatively inexpensive energy. Today, our society has grown to depend upon industrial activity to provide the necessities of modern living--food, clothing, housing and transportation. The very ways we conduct our lives, from the modern conveniences of the home to the leisure activities so important to us, have demanded ever increasing amounts of energy.

Recent events have planted seeds of energy consciousness in American society. The northeast power blackout of 1965 marked the beginning of a new awareness of the vulnerability and importance of energy-related technology. This awareness did little to curb demand, for during the following decade gross enrgy consumption in the United States rose by more than 60%.

The Arab oil embargo of 1973 again jolted the energy awareness of Americans. Not only did we have to wait in long gas lines, we also experienced our first big energy price increase. As a result of the embargo, oil went from $2 a barrel in 1973 to over $10 a barrel in 1974. Again, this awareness was short-lived. Today, gasoline consumption is heavier than ever before and we are now importing more than 40% of what we use and paying more than $20 a barrel!

When asked about energy, most people readily admit that they realize oil and gas are fuels which are rapidly being used up and that acceptable substitutes must be found. Yet, voluntary efforts to conserve energy have been largely unsuccessful over the long run. Mandatory measures, such as gas rationing, are politically unpopular. It seems inevitable that the long gas lines, spot shortages, and higher prices that were felt in the spring of 1979 will recur with increasing frequency and that these conditions will spread to the fuel oil, natural gas, and electricity markets.

We may, in fact, be at the threshold of an energy revolution. Certain signs of this revolution are beginning to show themselves. Americans are beginning to turn away from larger automobiles in favor of smaller, more fuel-efficient models. Sales of solar panels and home energy conservation items such as wood stoves, stack dampers, and insulation are rapidly increasing. Moreover, words like "conservation" and "energy" have become popular cliches. The very nature of revolution implies rapid change and an energy revolution will certainly bring about rapid change in the way we generate, distribute, and use energy.

Rapid changes in energy-related activities must produce similar rapid changes in energy-related employment. Students today must be aware of the potential for such rapid change in order to prepare themselves for the new and challenging careers which will develop in response to an energy revolution. Some of these careers will be entirely new; others will be technological extensions of today's careers. This handbook was written to provide an overview of rapidly-changing energy fields and occupations. It does not provide easy answers to career-related questions, but rather seeks to provide the information students need to plan and pursue an energy-related career on their own. The authors hope that this handbook will be a useful tool to a new generation of American workers seeking answers to one of the greatest challenges of our time.

SURVEY

WHAT CAREERS DO YOU THINK OF WHEN YOU CONSIDER JOBS IN ENERGY? Do you think of coal mining, operating a power plant, or conducting research to find new sources of energy? When asked, most students picked one of the three preceding occupations. In fact this handbook lists over 300 occupations which are in some way related to developing, producing, distributing or conserving energy.

HAVE YOU EVER CONSIDERED CHOOSING AN ENERGY-RELATED CAREER? In order to make an informed choice, you might find it helpful to know more about the four major areas of energy-related work. Perhaps you could choose to be a researcher who discovers a new design for fuel cells or a new way to harness tidal power. It could be you who helps build the structural steel supports for a tall offshore oil well, or you who devises the energy budget which saves a company part of its fuel bill. There is much more to be learned about energy conservation as well as energy distribution.

This handbook contains descriptions of over 60 separate fields organized into four areas of energy-related work. The first part of the handbook contains a fields outline followed by a description of each energy field. Next follows the occupations outline and descriptions of more than 60 separate job areas including the education necessary and the general prospects for these jobs in New Jersey. The purpose of this handbook is to help you find a career in an energy-related field which may be suited to your abilities and interests. There are three paths you might proceed from this point to use the handbook.

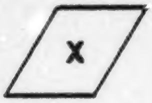
B. EMBEDDED FIGURES PUZZLE

DIRECTIONS

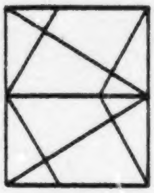
If you are not certain where to start in your search for a career in an energy-related field, you may begin by trying this quick exercise. It will give you an estimate of your ability to find simple forms hidden in more complex ones. Your speed and success in finding these patterns may be a useful tool in using this handbook.

You will want to use the ERASER side of a pencil and a clock or watch as you work. A piece of scratch paper may be useful.

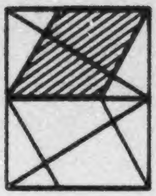
Here is a simple form which we labeled "X". Look at it, trying to recall its shape and the direction it faces.



This simple form named "X" is hidden within the more complex figure below. Try to find the simple form in the complex figure. With the ERASER side of the pencil, trace over it very lightly.



The correct solution with the simple form traced over the lines of the complex figure appears on the top of the next page. Note that there may be more than one simple figure within the complex pattern.

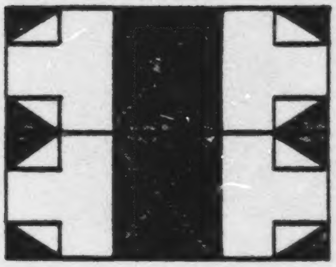


On the following three pages are more problems like the one above. You will see a complex figure with a letter under it corresponding to the simple form which is hidden in it. The simple forms may be found on the Guide Page at the end of the puzzle series. Try to trace the simple form lightly using ONLY THE ERASER of the pencil. Do this as quickly as possible. Keep the following ideas in mind:

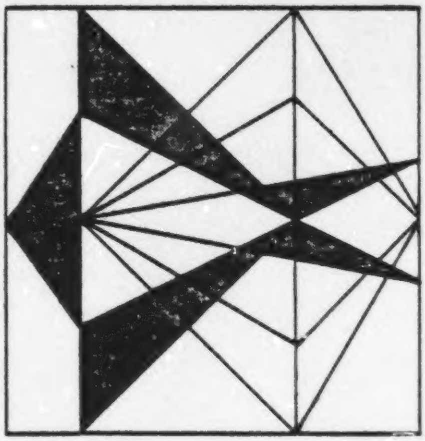
1. Look back to simple forms as often as you need to.
2. Use ONLY your ERASER to outline the figures you find.
3. The simple figure is always drawn within the complex one in the SAME SIZE, SAME PROPORTIONS and facing the SAME DIRECTION as it appears on the guide page.
4. Get ready to start. Check your watch or clock to note the starting time. Begin.

4

COMPLEX FORMS

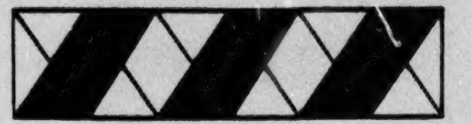


FIND SIMPLE FORM "B"

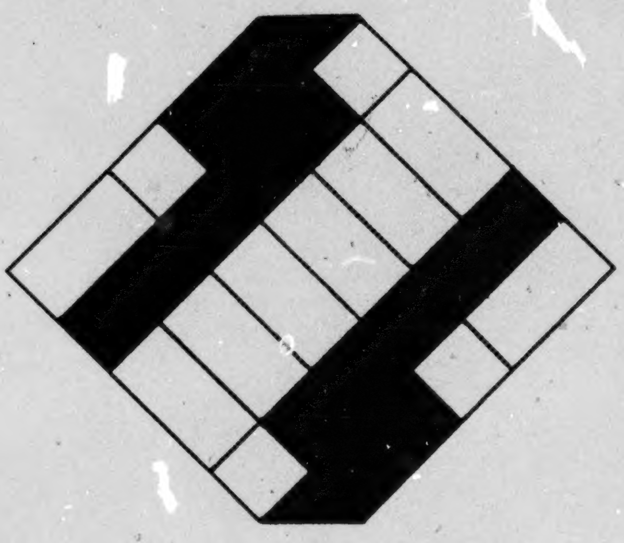


FIND SIMPLE FORM "E"

COMPLEX FORMS



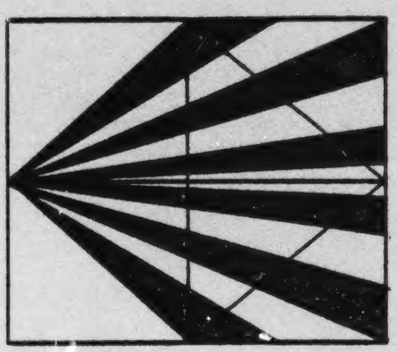
FIND SIMPLE FORM "A"



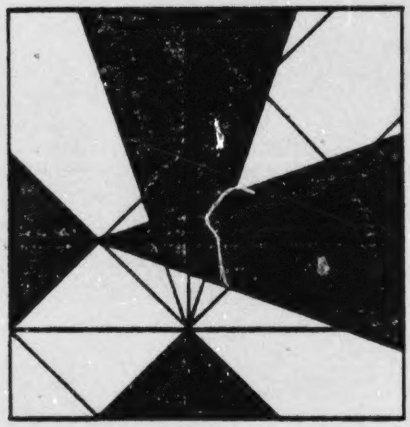
FIND SIMPLE FORM "C"

6

COMPLEX FORMS

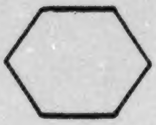


FIND SIMPLE FORM "D"

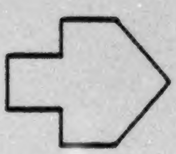


FIND SIMPLE FORM "F"

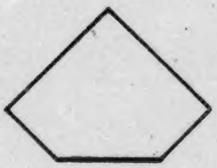
SIMPLE FORMS



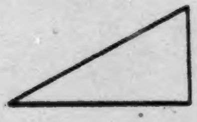
A



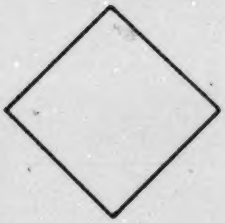
B



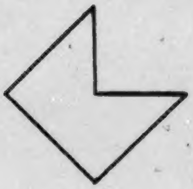
C



D



E



F

UNDERSTANDING THE RESULTS

Note the time when you finish the last simple figure. Using this time and your starting time, you can calculate how long the exercise took you. This length of time has been shown to be a useful indicator of your problem-solving skills.* The explanations below may help to give you a very general idea of your overall aptitudes in problem-solving, or verbal and social skills. It is important to note that all jobs require a varying mixture of both verbal and social skills. The results of this exercise are not meant to exclude any career possibilities, but rather to lead to broad occupational groups which may suit you.

EXPLANATION

If you finished in TWO minutes or less you may have a good aptitude in solving complicated visual problems. Such perceptual and visual skill is often found among those working in engineering and scientific fields. It has also been noted that people working at skilled trades and crafts such as plumbing or carpentry have good perceptual and visual skills.

If you took between TWO and SIX minutes to complete the exercise, you may have aptitudes in both the problem-solving and verbal areas. Further self-testing or simply listing your own interests may help to clarify your areas of strength. This mixture of aptitudes should be considered a plus in technical fields which require reporting or interaction with others, such as managerial or administrative occupations.

If you finished in more than SIX minutes or had difficulty finding the hidden simple forms, your strongest aptitudes may lie in verbal or social areas. Although most energy-related jobs require some problem-solving or visual skills, many professional and administrative occupations depend heavily upon personality skills and an ability to write clearly.

---

*This exercise is adapted from current research in personality originated by Herman Witken, Donald Goodenough and others.

THE NEXT STEP

If you easily solved the puzzles, current research indicates you should prepare yourself for a career in engineering, science, or the skilled trades. These occupational fields represent a wide range of jobs. Skilled trade occupations include electricians, pipefitters, boilermakers, welders, and carpenters. Engineers may specialize in electrical engineering, civil engineering, mechanical engineering, and other specialized fields. There are several scientific disciplines which may be useful in energy-related research.

In order to find which of these many careers are best suited to your interests, continue on to the Interest Maze. This exercise is designed to help those with visual-perceptual skill decide upon an occupational grouping based upon personal preference. Before you try the maze, you may want to make a quick list of those occupations which you have previously considered as careers. It may be helpful to check this list against the results of the Interest Maze.

If you were less able to solve the embedded figure puzzles quickly, then your skills may lie in verbal or social areas. Occupations that require interaction with people or communication skills may be of interest to you. You may want to consider careers in the service industry, social sciences, or business. Even though the majority of energy-related occupations require perceptual/visual skill, there are many jobs in energy that require strong verbal and social skills applied to technical fields. To learn more about such jobs from the handbook, see the occupational descriptions for:

- Accounting
- Administration
- Advertising
- Clerical Work
- Management
- Sales

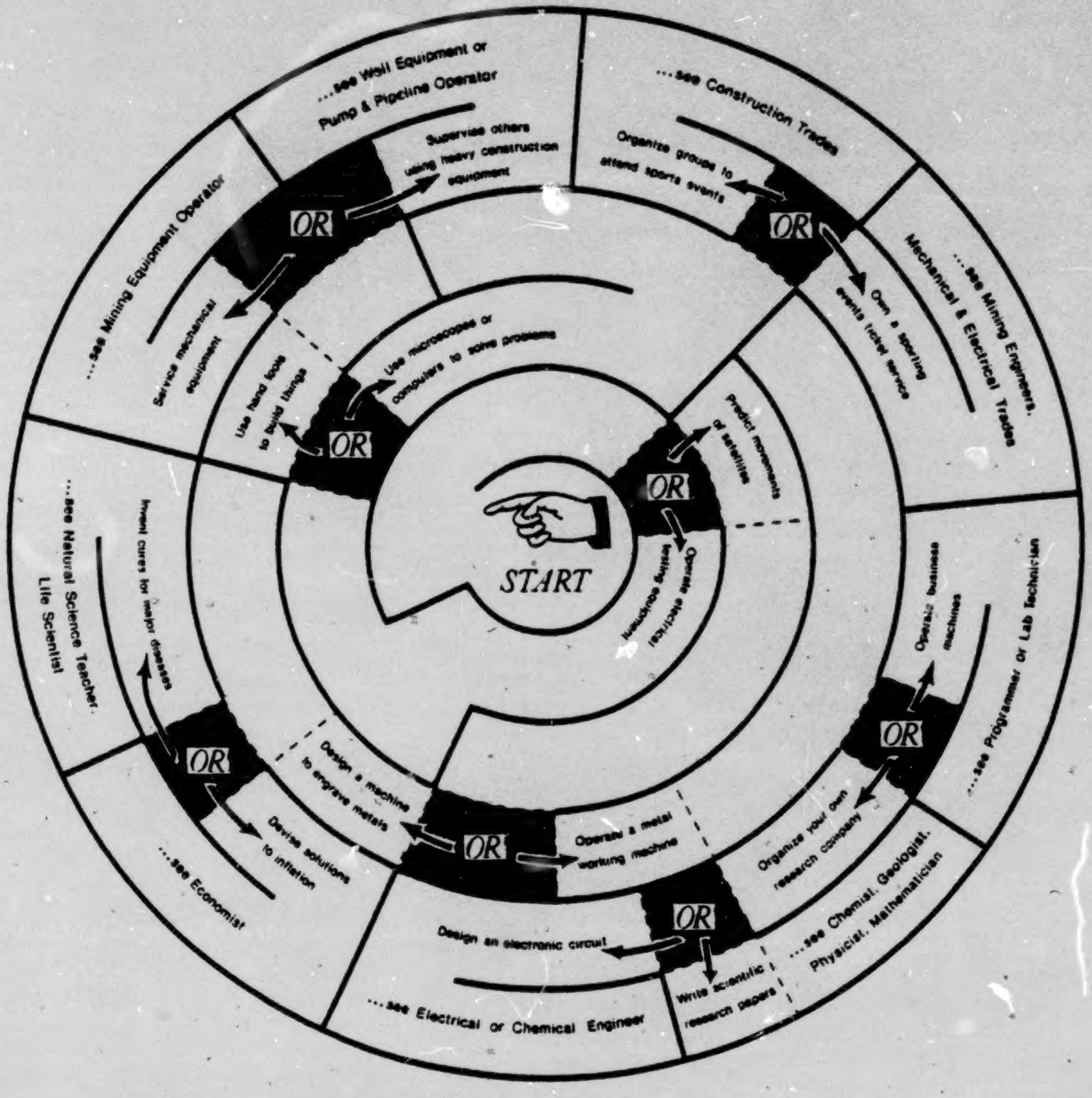
THE INTEREST MAZE:

The following Interest Maze is designed to suggest some job possibilities which may match some of your interests. The maze contains questions with two choices. The questions are designed according to a vocational theory about the relationship of interests to career choice. Each question set is a pair of activities which you may know how to do or may be interested in learning how to do. The questions are arranged from a starting point in the center.

Read each of the questions and decide quickly which of the two choices is more appealing. After choosing, follow that path until you reach the outer circle of the maze, making choices along the way. This outer circle contains the job titles which may match your interests. Your choices may lead to some jobs which may be unfamiliar. Use those job titles to build a possible career suggestions. Write down the suggested jobs on a scrap of paper then turn to the occupations section of the handbook to read about the jobs. You can find out what people who work at that job do, what training or education is needed, and what the prospects for that job are in New Jersey.

If the Maze takes you to a job you are not interested in choosing for a career, you might begin again at "start" and change some of your choices. The objective is for you to find out about several energy jobs which might interest you.

Which would you rather learn to do?


START
OR
Use microscopes or computers to solve problems
Use hand tools to build things
OR
Supervise others using heavy construction equipment
...see Well Equipment or Pump & Pipeline Operator
OR
Service mechanical equipment
...see Mining Equipment Operator
Predict movements of satellites
OR
Operate electrical testing equipment
OR
Organize groups to attend sports events
...see Construction Trades
Own a sporting events ticket service
...see Mining Engineers, Mechanical & Electrical Trades
Design a machine to engrave metals
OR
Operate a metal working machine
OR
Operate business machines
...see Programmer or Lab Technician
Organize your own research company
...see Chemist, Geologist, Physicist, Mathematician
OR
Design an electronic circuit
...see Electrical or Chemical Engineer
Write scientific research papers
OR
Invent cures for major diseases
...see Natural Science Teacher, Life Scientist
Devise solutions to inflation
...see Economist

Directions: Follow the maze from the center to see what energy related jobs might possibly interest you.

EXPLANATION

It is important to remember that the Interest Maze is just a game using activities to lead to some job options which may be new to you. The job choices which are found in the outer ring are not the only choices you can make. Furthermore, do not be concerned if your way of choosing a pathway leads to a job you do not think suits you. You are still the best judge of your own skills and interests.

We hope that the Interest Maze will suggest one or two new possibilities for careers. Use whatever part of it seems to fit.

FIELDS

This handbook defines energy-related fields as those activities which, in either a direct or supportive role, deal with the development, production, distribution, or conservation of energy. These four major areas of concern, taken together, include virtually all energy-related career areas.

Energy development involves research that will lead to new fuels, new power generation techniques, and better materials. It also involves planning and education to assure adequate supplies and a public that is prepared to meet energy challenges. Most occupations in energy development fields are research or administrative support occupations.

It is misleading to talk about energy production. The energy is present in the fuels that are used. It is power that is produced. Most occupations in these fields are equipment operation, but opportunities exist for skilled trade workers in energy-facility construction. In addition, support work is available for the safety, maintenance, clerical, and administrative staff.

The importance of energy distribution was clarified by the New York power failure of 1976 and the fuel shortages brought about by the severe winter weather of 1977. Both fuel and electrical power must be moved. Occupations in the skilled trades and in equipment operation play a major role in energy distribution.

Finally, as supplies fall below energy demand, conservation may become an increasingly important field of energy. Our entire way of living may change in an effort to cut back energy use without sacrificing the necessities of life. An increasingly wide variety of occupations are emerging in energy conservation. Conservation includes insulation, energy-saving building design, enforcement of regulations, and recycling.

This section of the handbook includes a fields outline followed by descriptions of the energy-related fields. Use the outline to get an idea of the overall relationship of the energy fields to development, production, distribution, and conservation. Each fields description that follows includes a brief article and an illustration representing that field. After each description is a list of occupations in that field organized according to the energy occupations section which follows in the handbook. This enables you to locate occupational information quickly if one of the fields is of interest to you.

FIELDS OUTLINE

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1. Alternative Power Generation

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i. SOLAR HEAT RESEARCH 18
ii. SOLAR ELECTRICITY RESEARCH 20
iii. ORBITAL COLLECTION RESEARCH 22

b. OCEAN HYDRO RESEARCH 24

c. OCEAN THERMAL RESEARCH 26

d. GEOTHERMAL RESEARCH 28

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h. NUCLEAR RESEARCH 36

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c. HYDROGEN FUEL RESEARCH 44

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b. ENVIRONMENTAL IMPACT RESEARCH 54

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D. RESERVES EXPLORATION 57

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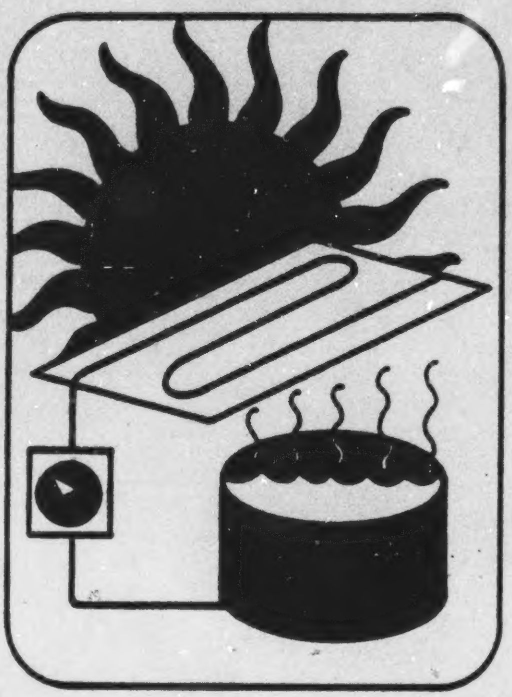
C. ON-SITE GENERATION 115
D. PLANNING 117
E. BUILDING DESIGN 118
F. RECYCLING 119
G. DEMAND REDUCTION 121

SOLAR HEAT RESEARCH



RESEARCH INTO SOLAR HEAT INVOLVES CHANGING SUNLIGHT INTO USEFUL HEAT ENERGY. THE RELATIVELY LOW TEMPERATURES NEEDED FOR SPACE HEAT AND HOT WATER CAN BE CREATED USING FLAT PLATE COLLECTORS. FLAT PLATE RESEARCH IS INVESTIGATING COLLECTOR DESIGN, COLLECTOR COATING, AND HEAT STORAGE. HIGH TEMPERATURES NEEDED FOR STEAM OR INDUSTRIAL PROCESSES REQUIRE COLLECTORS THAT CONCENTRATE THE SUNLIGHT. RESEARCH ON CONCENTRATING COLLECTORS IS INVESTIGATING CONCENTRATOR DESIGN, SOLAR TRACKING, HEAT LOSS REDUCTION, AND SYSTEM PERFORMANCE. ALTHOUGH MUCH OF THE SOLAR RESEARCH IS DONE IN THE SOUTHWEST, NEW JERSEY'S WELL ESTABLISHED RESEARCH AND DEVELOPMENT INDUSTRY WILL PROVIDE MANY OPPORTUNITIES FOR CAREERS IN SOLAR HEAT RESEARCH.

PROFESSIONAL - found working for government contractors and companies engaged in solar research, companies engaged in the manufacture of solar equipment, and on the faculty of universities engaged in solar research:

MATHEMATICIAN
METALLURGIST
PHYSICIST
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for government contractors and companies engaged in solar research and those engaged in the manufacture of solar equipment:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found on the staff of companies engaged in the manufacture of solar equipment:

ELECTROPLATER
SHEET METAL WORKER
WELDER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC
INSPECTOR

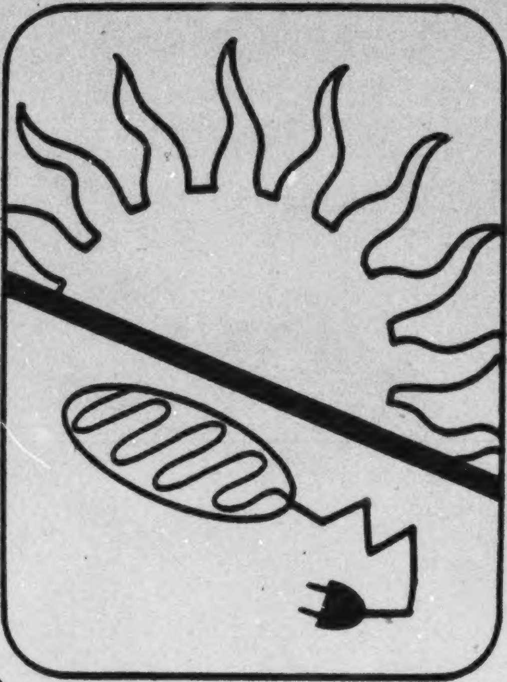
OPERATIONS ENGINEERING - little work available, exclusively related to solar heat research

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government contractors and companies engaged in solar research and in the manufacture of solar equipment; also, some office support for universities engaged in solar research:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

20

SOLAR ELECTRICITY RESEARCH



RESEARCH INTO SOLAR ELECTRICITY INVOLVES CHANGING SUNLIGHT DIRECTLY INTO ELECTRICITY. THIS IS DONE USING MATERIALS CALLED SEMICONDUCTORS TO MAKE SOLAR CELLS. ALTHOUGH SOLAR ELECTRICITY HAS BEEN USED FOR MANY YEARS ON SPACE SATELLITIES, IT IS STILL TOO EXPENSIVE TO USE ON THE EARTH. PROBLEMS INCLUDE THE NEED FOR HIGH-PURITY MATERIALS, COSTLY MANUFACTURING PROCESSES, AND LOW EFFICIENCY. RESEARCHERS ARE INVESTIGATING ALTERNATE MATERIALS, COST-REDUCTION IN SOLAR CELL MANUFACTURE, AND IMPROVED EFFICIENCY. NEW JERSEY HAS ALWAYS BEEN A LEADER IN SEMICONDUCTOR RESEARCH AND SHOULD PROVIDE CONTINUING EMPLOYMENT IN SOLAR ELECTRICITY RESEARCH.

PROFESSIONAL - found working for government contractors and companies engaged in solar electricity research and on the faculty of universities engaged in solar electricity research:

CHEMIST
MATHEMATICIAN
PHYSICIST
CERAMIC ENGINEER
ELECTRICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for government contractors and companies engaged in solar electricity research:

ELECTRONICS TECHNICIAN
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - most experimental work involves little trade work; may share time with other projects:

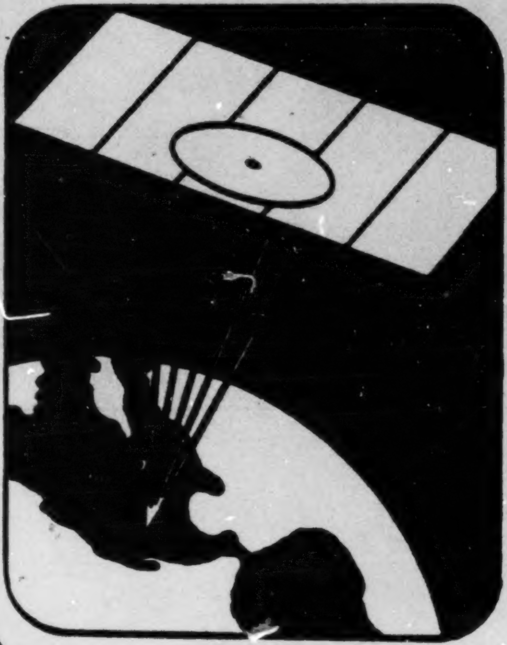
MACHINIST
MAINTENANCE MECHANICS AND ELECTRICIAN
INSPECTOR

OPERATIONS ENGINEERING - little work exclusively related to solar heat research.

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies engaged in solar electric research and some office support at universities engaged in solar electric research:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR

ORBITAL COLLECTION RESEARCH



RESEARCH INTO ORBITAL COLLECTION OF SOLAR ENERGY IS STILL VERY CONCEPTUAL. SUNLIGHT IS CONSTANT HIGH ABOVE THE EARTH, THERE IS NO NIGHT AND NO CLOUD COVER. COLLECTING SATELLITES ARE PLANNED AS HUGE STRUCTURES MILES ACROSS, BUILT IN ORBIT. THESE WOULD COLLECT SOLAR ENERGY AND TRANSFORM IT DIRECTLY INTO ELECTRICITY OR INTO HEAT WHICH WOULD THEN GENERATE ELECTRICITY. THE ELECTRIC ENERGY WOULD BE BEAMED TO EARTH USING POWERFUL MICROWAVES. LARGE EARTH RECEIVING STATIONS WOULD CHANGE THE MICROWAVES BACK TO USABLE ELECTRICITY. SINCE RESEARCH OF SOLAR ORBITAL COLLECTION IS STILL NEW, VERY FEW NEW JERSEY JOBS WILL BE DIRECTLY CREATED BY THIS FIELD.

PROFESSIONAL - found working for government contractors and companies engaged in designing orbital solar collectors:

- GEOPHYSICIST
- MATHEMATICIAN
- PHYSICIST
- CIVIL ENGINEER
- ELECTRICAL ENGINEER
- MECHANICAL ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT
- ENGINEERING ANALYST
- WELDING ENGINEER

TECHNICAL - found working for government contractors and companies engaged in designing orbital solar collectors:

- DRAFTER
- PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - orbital solar collector research is in the design phase with little trade work

OPERATIONS ENGINEERING - little operations engineering work available during the design phase of orbital collection research

MANAGERIAL OR ADMINISTRATIVE - may share job time with other projects at government contractors and companies involved in designing orbital solar collectors:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
INDUSTRY OR GOVERNMENT ADMINISTRATOR

OCEAN HYDRO RESEARCH

OCEAN HYDROELECTRIC POWER USES MOVEMENT OF OCEAN WATER TO GENERATE ELECTRICITY. THE ENERGY OF WAVES CAN BE CHANGED INTO FLUID OR GAS FLOW ENERGY. THIS CAN BE USED TO DRIVE TURBINES AND GENERATORS. WAVE POWER RESEARCH STUDIES MECHANICAL DESIGN AND ENERGY FLOW IN THE WAVE MACHINE. WAVE POWER IS STILL A NEW RESEARCH AREA. TIDAL WATER MOVEMENT INTO AND OUT OF LARGE BAYS CAN BE CONTROLLED BY DAMS AND USED TO GENERATE POWER. TIDAL POWER HAS BEEN USED IN FRANCE. LARGE TIDES ON THE NORTHERN MAINE COAST COULD BE USED FOR TIDAL POWER. RESEARCH INVOLVES FINDING A GOOD LOCATION AND DESIGNING THE DAMS AND GENERATORS. WAVE POWER RESEARCH HAS THE GREATER JOB POTENTIAL IN NEW JERSEY.

PROFESSIONAL - found working for government contractors and companies engaged in ocean hydroelectric research:

GEOPHYSICIST
PHYSICIST
CIVIL ENGINEER
ELECTRICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST
MARINE ENGINEER

TECHNICAL - found working for government contractors and companies engaged in ocean hydroelectric research:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - most ocean hydroelectric trade work in the U.S. is limited to the fabrication of demonstration wave-power machines.

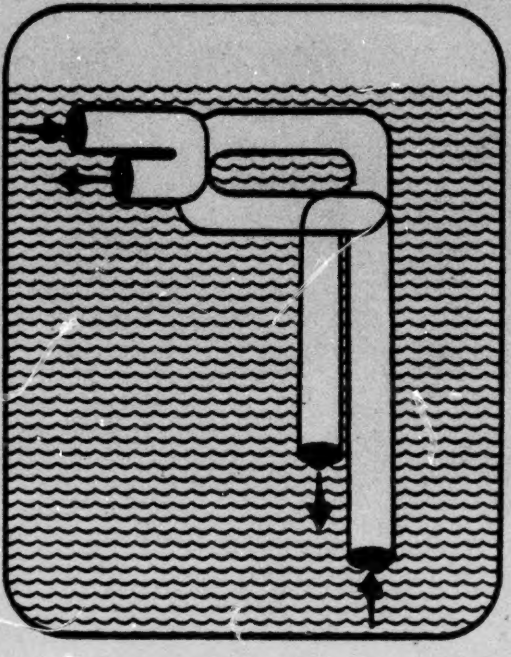
- MACHINIST
- SHEET METAL WORKER
- WELDER

OPERATIONS ENGINEERING - little operations engineering work currently available

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government contractors and companies engaged in ocean hydroelectric research:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

OCEAN THERMAL RESEARCH



RESEARCH IN OCEAN THERMAL DEVELOPMENT CENTERS AROUND USING THE HEAT IN THE UPPER LEVEL OF DEEP OCEANS TO GENERATE ELECTRICITY. THIS IS KNOWN AS OCEAN THERMAL ENERGY CONVERSION, OR OTEC. OTEC DEVELOPMENT TODAY IS LIMITED TO DESIGN, FABRICATION, AND TESTING OF SYSTEM COMPONENTS AND TO DESIGN, FABRICATION AND TESTING OF DEMONSTRATION OTEC POWER PLANTS. SINCE FAVORABLE OCEAN TEMPERATURES EXIST ONLY IN TROPICAL WATERS, OTEC CANNOT SIGNIFICANTLY CONTRIBUTE TO EITHER ENERGY PRODUCTION OR ENERGY EMPLOYMENT IN NEW JERSEY FOR THE NEAR FUTURE.

PROFESSIONAL - found working for government contractors and private companies engaged in OTEC research:

MATHEMATICIAN/STATISTICIAN
PHYSICIST
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST
MARINE ENGINEER

TECHNICAL - found working for government contractors and private companies engaged in OTEC research:

DRAFTER
ELECTRONICS TECHNICIAN
ENGINEERING AND SCIENCE TECHNICIAN
PROGRAMMER

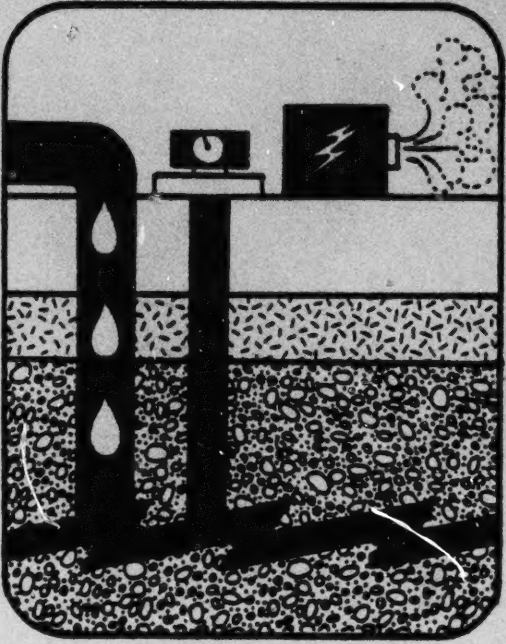
SKILLED TRADE, CRAFT, or LABOR - very little trade work available in fabricating experimental OTEC facilities.

OPERATIONS ENGINEERING - little operations work is available during the research phase of OTEC

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government contractors and private companies engaged in OTEC research:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

GEOTHERMAL RESEARCH



GEOTHERMAL MEANS "EARTH HEAT." GEOTHERMAL RESEARCH INVOLVES FINDING GOOD LOCATIONS AND DESIGNING SYSTEMS TO USE THE EARTH'S HEAT TO MAKE ELECTRICITY. THE EARTH'S CRUST HAS "HOT SPOTS" NEAR GEOLOGICALLY ACTIVE AREAS. FINDING THESE AREAS IS THE FIRST STEP IN GEOTHERMAL DEVELOPMENT. THE AREA MUST BE STUDIED TO DECIDE IF ENOUGH HEAT IS PRESENT. WELLS ARE THEN DRILLED AND WATER IS PUMPED DOWN TO THE HOT ROCKS. STEAM ESCAPES FROM OTHER WELLS AND MAY BE USED TO DRIVE TURBINES AND GENERATORS. NEW JERSEY HAS NO KNOWN GEOTHERMAL POTENTIAL AND DIRECT RESEARCH JOBS ARE NOT AVAILABLE. SOME WORK MAY BE AVAILABLE DEVELOPING THE POWER SYSTEMS WHICH USE THE GEOTHERMAL STEAM.

PROFESSIONAL - found working for government contractors and companies engaged in geothermal development:

GEOLOGIST/GEOPHYSICIST
PHYSICIST
CIVIL ENGINEER
MECHANICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST

TECHNICAL - found working for government contractors and companies engaged in geothermal development:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - little trade work available in geothermal research - may assist at experimental drilling sites:

- MACHINIST
- WELDER
- ENGINE MECHANIC
- COMPANY LABORER OR MAINTENANCE WORKER

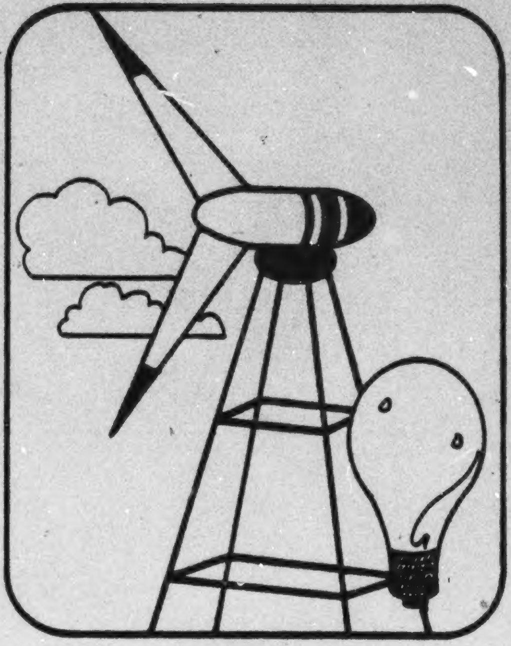
OPERATIONS ENGINEERING - found working at the site of experimental geothermal wells:

- WELL EQUIPMENT OPERATOR
- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for government contractors and companies engaged in geothermal development:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

WIND POWER RESEARCH



WINDMILLS, WHICH WERE ONCE A COMMON SIGHT ON FARMS, MAY BE ONE OF OUR FUTURE ENERGY OPTIONS. RESEARCH CENTERS BOTH ON FINDING SUITABLE LOCATIONS FOR WIND GENERATORS AND ON DESIGNING SAFE, EFFICIENT, AND LONG-LASTING WIND GENERATORS. RECENT DESIGNS VARY FROM THE FAMILIAR-LOOKING BLADED WINDMILL TO THE MORE MODERN LOOKING, LARGE WIND MACHINES OFTEN SHOWN IN POPULAR MAGAZINES. MOST WINDMILLS WILL BE CONNECTED TO A GENERATOR TO MAKE ELECTRICITY FROM THE WIND ENERGY. NEW JERSEY'S WELL-ESTABLISHED RESEARCH INDUSTRY SHOULD PROVIDE JOBS BOTH IN WINDMILL DESIGN AND LOCATION.

PROFESSIONAL - found working for government contractors and companies engaged in research and development of wind generators:

GEOPHYSICIST
CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for government contractors and companies engaged in research and development of wind generators:

DRAFTER
ELECTRONICS TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found on the construction crews fabricating and erecting demonstration wind generators:

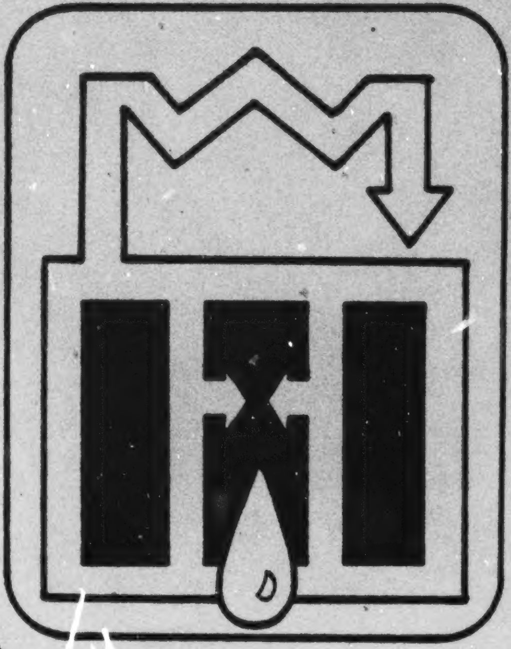
- CEMENT MASON
- CONSTRUCTION LABORER
- ELECTRICIAN
- IRON WORKER
- OPERATING ENGINEER
- MACHINIST
- SHEET METAL WORKER
- WELDER

OPERATIONS ENGINEERING - little work involved as most wind generators are automatically controlled

MANAGERIAL or ADMINISTRATIVE - found working for government contractors and companies engaged in research and development of wind generators, may share job time with other projects at larger companies:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- COMPANY SALES REPRESENTATIVE
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

FUEL CELL RESEARCH



RESEARCH IN ENERGY PRODUCTION INVOLVES BOTH NEW FUELS AND BETTER ECONOMY. THE FUEL CELL MAY BE ABLE TO OFFER BETTER ECONOMY USING A NEW FUEL, HYDROGEN. IN A FUEL CELL, HYDROGEN GAS REACTS WITH OXYGEN TO PRODUCE WATER. THE FUEL CELL IS QUIET BECAUSE IT HAS NO MOVING PARTS. IT IS EFFICIENT BECAUSE IT MAKES ELECTRICITY DIRECTLY WITHOUT WASTING HEAT. THE WASTE PRODUCT, WATER, CAUSES NO MAJOR POLLUTION. FUEL CELLS HAVE BEEN USED IN MANNED SPACE FLIGHTS. LARGE UNITS ARE NOW BEING CONCEIVED FOR USE ON THE GROUND. NEW JERSEY IS NOT NOW HEAVILY WORKING ON FUEL CELL RESEARCH, BUT FUTURE WORK MAY BE DONE.

PROFESSIONAL - found working for companies engaged in fuel cell research and development:

- CHEMIST
- MATHEMATICIAN
- PHYSICIST
- CHEMICAL ENGINEER
- ELECTRICAL ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT
- ENGINEERING ANALYST

TECHNICAL - found working for companies engaged in fuel cell research and development:

- DRAFTER
- ELECTRONICS TECHNICIAN
- ENGINEERING AND SCIENCE TECHNICIAN
- LABORATORY TECHNICIAN
- PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - found working for companies fabricating and/or installing fuel cells for demonstration projects:

- CEMENT MASON
- ELECTRICIAN
- OPERATING ENGINEERS
- MACHINIST
- SHEET METAL WORKER
- WELDER

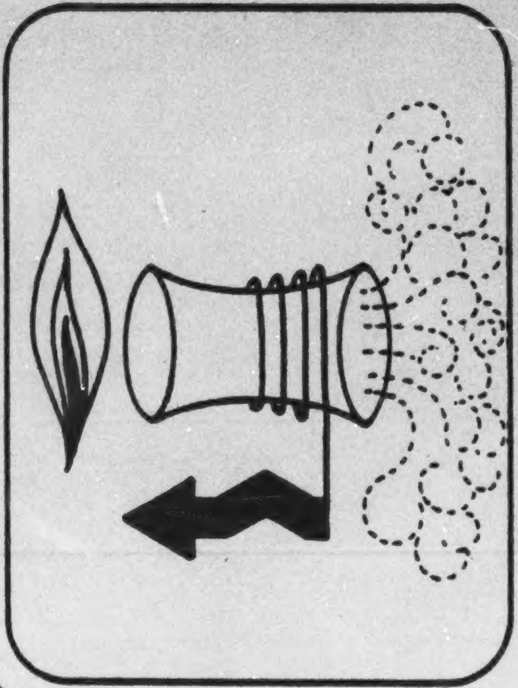
OPERATIONS ENGINEERING - little work available due to automatic control of fuel cells - limited to work at testing facilities:

- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies engaged in fuel cell research and development:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

MHD RESEARCH



RESEARCH IS ALWAYS LOOKING FOR MORE EFFICIENT WAYS TO MAKE POWER. ONE PROMISING NEW METHOD IS MAGNETOHYDRODYNAMIC GENERATION, OR SIMPLY MHD. ALTHOUGH A MOUTHFUL TO SAY, MHD IS FAIRLY SIMPLE. POWER PLANT ENERGY IS USED TO MAKE A HIGH-TEMPERATURE GAS. THIS GAS IS THEN CHARGED WITH ELECTRIC PARTICLES CALLED IONS. THE GAS IS THEN FORCED THROUGH A MACHINE THAT ACTS LIKE A TRANSFORMER, WHICH REMOVES ENERGY FROM THE GAS AND CHANGES IT DIRECTLY INTO ELECTRICITY. THE GAS CAN THEN BE USED TO MAKE STEAM AND DRIVE TURBINES. LITTLE RESEARCH IS NOW BEING DONE IN NEW JERSEY ON MHD GENERATION.

PROFESSIONAL - found working for companies engaged in MHD research and development:

MATHEMATICIAN
PHYSICIST
CERAMIC ENGINEER
ELECTRICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST
WELDING ENGINEER

TECHNICAL - found working for companies engaged in MHD research and development:

DRAFTER
ELECTRONICS TECHNICIAN
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies fabricating and/or installing MHD generators for research or demonstration projects:

- CEMENT MASON
- ELECTRICIAN
- OPERATING ENGINEER
- PIPEFITTER
- BOILERMAKER
- MACHINIST
- WELDER

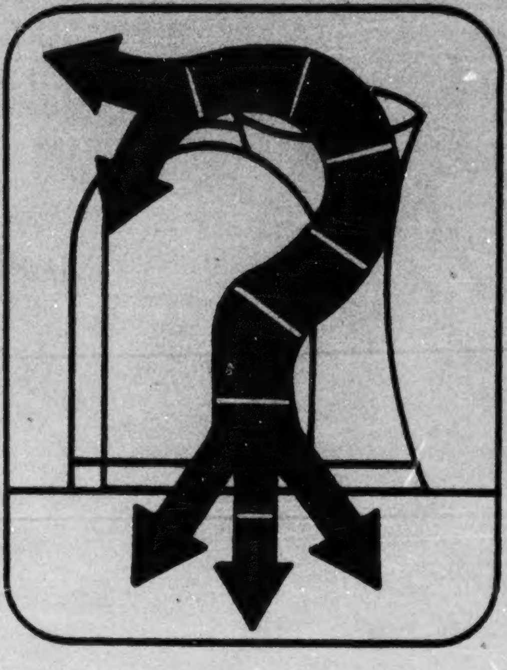
OPERATIONS ENGINEERING - little work available due to automatic control of MHD generators - limited to work at testing facilities:

- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies engaged in MHD research:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

NUCLEAR RESEARCH



TODAY, THE FUTURE OF NUCLEAR POWER IN THIS COUNTRY IS IN QUESTION. RESEARCH SHOULD CONTINUE TO SEE HOW NUCLEAR POWER CAN BE MADE SAFER AND NUCLEAR FUEL MADE LONGER LASTING. THE ANSWER TO THE FUEL QUESTION MAY LIE IN BREEDER REACTORS, WHICH CREATE FUEL AS THEY MAKE POWER. ALTHOUGH THE U.S. HAS STOPPED ITS BREEDER PROGRAM, RESEARCH INTO BREEDERS THAT MAKE NON-WEAPON FUEL MAY START AS OTHER COUNTRIES BEGIN BREEDER USE. NEW JERSEY IS NOT INVOLVED IN BREEDER REACTOR RESEARCH. BOTH SAFETY AND FUEL USE MIGHT BE IMPROVED IF THE FUSION REACTOR IS DEVELOPED. THIS REACTOR USES A DIFFERENT ATOMIC PROCESS TO MAKE POWER. ALTHOUGH FUSION REACTORS WILL NOT BE DEVELOPED BEFORE THE NEXT CENTURY, NEW JERSEY HAS A MAJOR CENTER FOR FUSION RESEARCH.

PROFESSIONAL - found working for government contractors and companies engaged in nuclear research:

MATHEMATICIAN
PHYSICIST
CIVIL ENGINEER
ELECTRICAL ENGINEER
NUCLEAR ENGINEER
ENGINEERING ANALYST
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - found working for government contractors and companies engaged in nuclear research:

DRAFTER
ELECTRONICS TECHNICIAN
ENGINEERING AND SCIENCE TECHNICIAN
INSTRUMENT TECHNICIAN
LABORATORY TECHNICIAN
PROGRAMMER

SKILLED TRADE, CRAFT or LABOR - found working for companies and subcontractors fabricating and/or installing experimental reactors:

- CEMENT MASON
- CONSTRUCTION LABORER
- ELECTRICIAN
- IRON WORKER
- OPERATING ENGINEER
- PIPEFITTER
- BOILERMAKER
- WELDER
- MAINTENANCE MECHANIC AND ELECTRICIAN

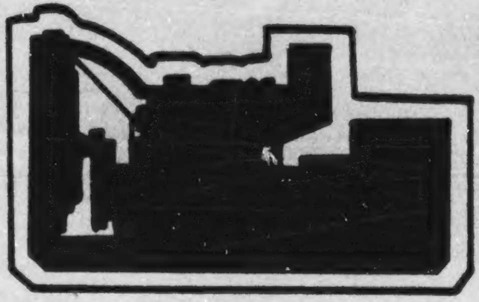
OPERATIONS ENGINEERING - found working at experimental test reactor facilities:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies engaged in nuclear research:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- EMPLOYMENT OFFICER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

ENGINE RESEARCH



MUCH OF OUR POWER GENERATION IS BROUGHT ABOUT BY USING ENGINES. AN ENGINE IS ANY MACHINE THAT CHANGES HEAT ENERGY TO MECHANICAL ENERGY. THE INTERNAL COMBUSTION PISTON ENGINES USED IN AUTOMOBILES AND THE TURBINE ENGINES USED IN JET AIRCRAFT ARE TWO GOOD EXAMPLES. INTERNAL COMBUSTION RESEARCH CENTERS AROUND DEVELOPING MORE EFFICIENT GAS AND DIESEL ENGINES FOR AUTOMOBILE USE. GAS TURBINES ARE BEING DEVELOPED THAT MAY BE USED IN AUTOMOBILES AS WELL AS FOR ELECTRIC POWER GENERATION. ALTHOUGH NOT NEW, ALTERNATIVE HEAT ENGINES USING THE STIRLING CYCLE ARE JUST NOW RECEIVING RESEARCH ATTENTION. MUCH OF THIS ENGINE RESEARCH IS CARRIED ON BY AUTO MANUFACTURERS AND GOVERNMENT AGENCIES, BUT SEVERAL NEW JERSEY COMPANIES ARE CURRENTLY INVOLVED.

PROFESSIONAL - found working for government contractors and companies engaged in engine research or manufacture:

PHYSICIST
MECHANICAL ENGINEER
ENGINEERING ANALYST
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - found working for government contractors and companies engaged in engine research or manufacture:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for government contractors or companies fabricating experimental engines:

MACHINIST
WELDER
ENGINE MECHANIC
INSPECTOR

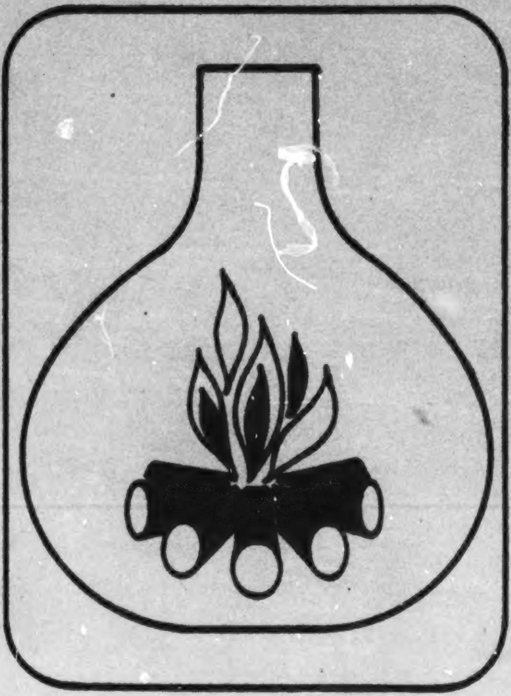
OPERATIONS ENGINEERING - found working for government contractors or companies engaged in experimental engine testing:

GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government contractors and companies engaged in engine research or manufacture:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

BIOFUELS RESEARCH



THE BIOLOGICAL WORLD HAS LONG USED THE SUN'S ENERGY, STORING IT IN PLANT AND ANIMAL TISSUE. WOOD, BURNED AS MAN'S FIRST FUEL, IS AN EXAMPLE OF BIOMASS. RESEARCH IS IMPROVING FAST-GROWING PLANTS AND LOOKING AT WAYS TO PREPARE AND USE PLANT MATERIAL NORMALLY WASTED. BIO-DEGRADATION PRODUCTS ARE FORMED BY THE DECAY OF ENERGY-RICH PLANT TISSUE OR ANIMAL WASTE PRODUCTS. IF CONDITIONS ARE CONTROLLED, METHANE FUEL IS MADE. THIS IS COMMON IN WASTEWATER TREATMENT. ALCOHOL, DISTILLED FROM PLANTS, MAY STRETCH OUR GASOLINE SUPPLY. ALTHOUGH BIO-FUELS ARE OLD AND WELL-UNDERSTOOD, RESEARCH IS NEEDED TO SHOW THEIR FUTURE IMPORTANCE. THE NEW JERSEY RESEARCH INDUSTRY SHOULD CONTINUE TO PROVIDE WORK IN BIO-FUELS RESEARCH.

PROFESSIONAL - found working for companies engaged in bio-fuels research and those engaged in the manufacture of bio-fuel products and related equipment:

CHEMIST
FORESTER/SILVICULTURIST
LIFE SCIENTIST
CHEMICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for companies engaged in bio-fuels research and those engaged in the manufacture of bio-fuel products and related equipment:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies fabricating experimental or production bio-fuel equipment:

- BOILERMAKER
- MACHINIST
- SHEET METAL WORKER
- WELDER
- COMPANY LABORER

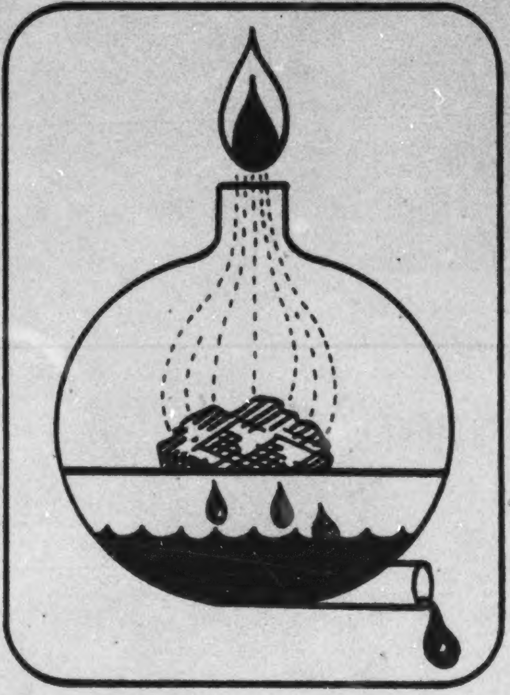
OPERATIONS ENGINEERING - limited to work at experimental bio-fuel plants - some production work available:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies engaged in bio-fuels research:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- COMPANY SALES REPRESENTATIVE
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

COAL LIQUEFACTION AND GASIFICATION RESEARCH



THE LIMITED AMOUNT OF OIL AND GAS MAKES COAL OUR BEST FOSSIL FUEL RESOURCE. IN ITS NATURAL, SOLID FORM, COAL IS NOT EASILY BURNED IN MOVING VEHICLES. LONG-DISTANCE TRANSPORTATION OF COAL IS COSTLY. MAKING COAL A LIQUID (LIQUEFACTION) OR A GAS (GASIFICATION) WOULD EASE DIFFICULTIES IN USE OR TRANSPORTATION. IN LIQUEFACTION, COAL IS TURNED INTO A MAN-MADE CRUDE OIL WHICH CAN BE REFINED INTO FUEL OR CHEMICALS. IN GASIFICATION, COAL IS CHANGED INTO A VARIETY OF GASSES WHICH ARE SEPARATED TO GET MAN-MADE NATURAL GAS. BOTH PROCESSES ARE WELL KNOWN, BUT CONTINUED RESEARCH IS NEEDED TO MAKE THE BEST PRODUCT ECONOMICALLY. NEW JERSEY IS PLAYING A CONTINUING ROLE IN THIS SEARCH.

PROFESSIONAL - found working for companies engaged in coal liquefaction or gasification research and development:

CHEMIST
PHYSICIST
CHEMICAL ENGINEER
CIVIL ENGINEER
MECHANICAL ENGINEER
PETROLEUM ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST

TECHNICAL - found working for companies engaged in coal liquefaction or gasification research and development:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies constructing demonstration coal liquefaction or gasification facilities:

- CEMENT MASON
- CONSTRUCTION LABORER
- ELECTRICIAN
- IRON WORKER
- PIPEFITTER
- BOILERMAKER
- SHEET METAL WORKER
- WELDER
- INSPECTOR

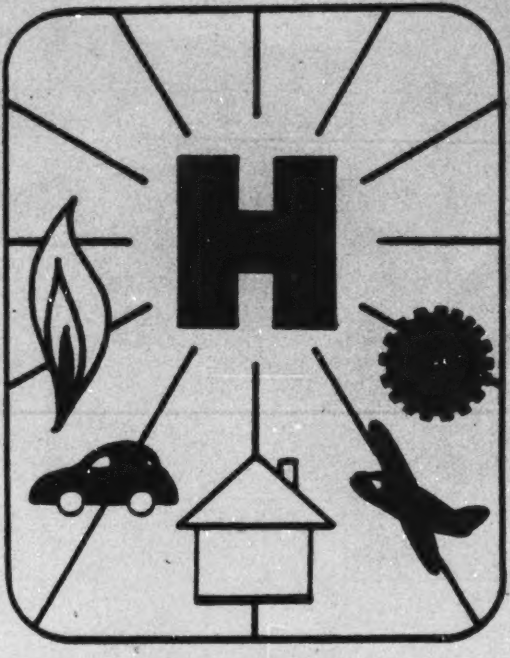
OPERATIONS ENGINEERING - found working for companies operating demonstration coal liquefaction or gasification facilities:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for companies engaged in coal liquefaction and gasification research and development:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- STATISTICAL CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

HYDROGEN FUEL RESEARCH



THE FUEL VALUE OF HYDROGEN IS CLEAR TO ANYONE WHO HAS SEEN THE FILM OF THE HINDENBURG FIRE. CONTROL OF THIS FUEL IS NOW POSSIBLE AND ITS FUTURE USE IS LIKELY. RESEARCH CENTERS AROUND MAKING, BURNING, AND STORING HYDROGEN. HYDROGEN MAY BE MADE BY SPLITTING WATER MOLECULES WITH ELECTRICITY. SOLAR ENERGY MAY PROVIDE THIS POWER. HYDROGEN MAY BE BURNED CLEANLY USING REGULAR ENGINES WITH SLIGHT MODIFICATION. STORAGE IN HIGH-PRESSURE TANKS OR AS A CHEMICAL SOLID APPEARS SAFE. MORE RESEARCH ON ALL PARTS OF HYDROGEN USE IS NEEDED. NEW JERSEY SHOULD PROVIDE RESEARCH JOBS IN HYDROGEN FUEL.

PROFESSIONAL - found working for companies, government contractors, and universities engaged in hydrogen fuel research and development:

CHEMIST
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for companies and government contractors engaged in hydrogen fuel research and development:

ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies and government contractors with development or demonstration hydrogen fuel projects:

MACHINIST
WELDER
ENGINE MECHANIC

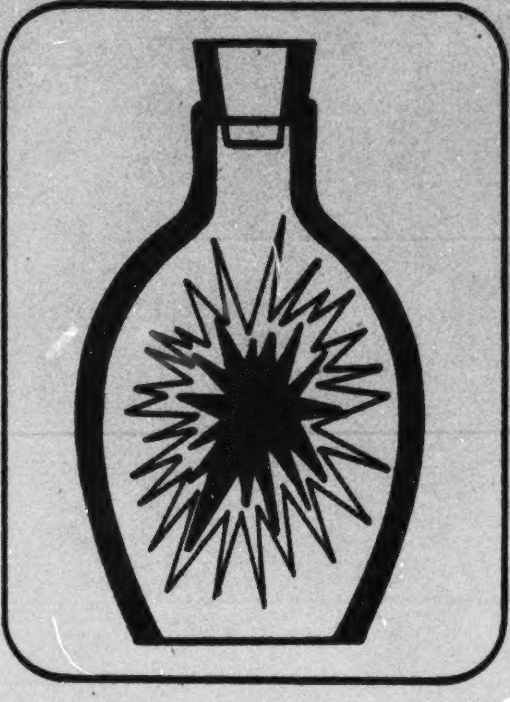
OPERATIONS ENGINEERING - limited to a few positions with companies and government contractors engaged in performance testing:

GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies and government contractors engaged in hydrogen fuel research:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
COMPANY SALES REPRESENTATIVE
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

ENERGY STORAGE RESEARCH



NOW, AS IN THE PAST, WE ARE USED TO HAVING ENERGY WHEN WE WANT IT. NATURE HAS STORED SOLAR ENERGY IN THE FORM OF FOSSIL FUELS (COAL, OIL, AND GAS). AS WE EXHAUST THESE FUELS, MAN-MADE STORAGE SYSTEMS MUST BE DEVISED. HEAT FROM SOLAR PANELS MUST BE STORED FOR CLOUDY DAYS. WATER, ROCK, OR SALT IS NOW USED FOR HEAT STORAGE. LIGHTER AND BETTER BATTERIES ARE NEEDED TO STORE ELECTRICITY MADE FROM SUN OR WIND. FLYWHEELS MAY BE USED TO STORE ENERGY IN ROTATION. NEW FUELS WILL STORE ENERGY IN CHEMICAL BONDS. CONTINUED RESEARCH IS NEEDED TO MAKE ENERGY STORAGE SYSTEMS CHEAP YET RELIABLE. NEW JERSEY WILL CONTINUE TO HAVE A PART IN THIS RESEARCH EFFORT.

PROFESSIONAL - found working for government contractors, companies, and universities engaged in energy storage research:

- CHEMIST
- ECONOMIST
- MATHEMATICIAN
- PHYSICIST
- CHEMICAL ENGINEER
- ELECTRICAL ENGINEER
- MECHANICAL ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT
- ENGINEERING ANALYST
- ARCHITECT

TECHNICAL - found working for government contractors and companies engaged in energy storage research:

- DRAFTER
- ELECTRONICS TECHNICIAN
- ENGINEERING AND SCIENCE TECHNICIAN
- LABORATORY TECHNICIAN
- PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - found working for government contractors and companies with development or demonstration energy storage projects:

ELECTRICIAN
MACHINIST
SHEET METAL WORKER
WELDER

OPERATIONS ENGINEERING - limited to a few positions with government contractors and companies engaged in performance testing of energy storage devices:

GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at companies and government contractors engaged in energy storage research:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

RESEARCH IN TRENDS AND POLICY

UP TO NOW, ENERGY HAS BEEN CHEAP AND PLENTIFUL. AS ENERGY BECOMES MORE LIMITED AND COSTLIER, RESEARCH MUST BE DONE TO PREDICT ENERGY TRENDS AND TO MAKE ENERGY POLICY. THE DEMAND FOR ENERGY MUST FIRST BE ACCURATELY PREDICTED USING COMPUTER MODELING. SUPPLY MUST ALSO BE ANALYZED. ECONOMISTS MUST THEN DEVELOP A PLAN TO DISTRIBUTE AVAILABLE ENERGY THAT MEETS REQUIRED DEMANDS WITHOUT SERIOUS SHORTAGES IN ANY ONE AREA. MARKETING ANALYSES MUST BE MADE TO MODIFY DEMAND IF SHORTAGES OCCUR. NEW JERSEY'S MARKETING AND PUBLIC OPINION RESEARCH COMPANIES WILL CONTINUE TO PROVIDE EMPLOYMENT FOR TRENDS AND POLICY RESEARCHERS.

PROFESSIONAL - found working for government agencies and consulting companies dealing with opinion, energy, or economic research:

ECONOMIST
MATHEMATICIAN/STATISTICIAN
ENGINEERING ANALYST
LAWYER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - found working for government agencies and consulting companies dealing with opinion, energy, or economic research:

PROGRAMMER

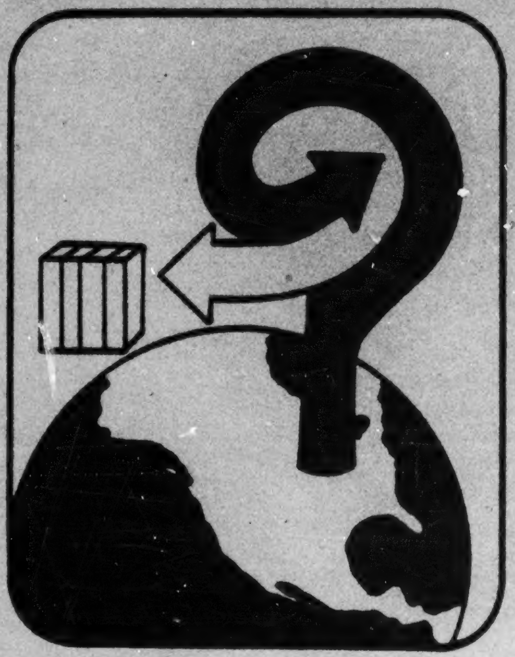
SKILLED TRADE, CRAFT, or LABOR - little or not trade work is involved in trends and policy research.

OPERATIONS ENGINEERING - little or no operations engineering is involved in trends and policy research

MANAGERIAL or ADMINISTRATIVE - found working for governmental agencies and consulting companies dealing with opinion, energy, or economic research:

RECEPTIONIST
SECRETARY
TYPIST/STENOGRAPHER
FILE CLERK
STATISTICAL CLERK
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR
SYSTEMS ANALYST

MATERIALS RESEARCH



THE FUTURE MAY BRING A NEW GENERATION OF VERY EFFICIENT MACHINES DESIGNED TO GENERATE OR USE ENERGY. THESE MACHINES MAY REQUIRE HIGH TEMPERATURES, LOW FRICTION, AND LONG LASTING PARTS. THESE DEMANDS WILL TEST THE CREATIVITY OF MATERIALS RESEARCHERS. NEW CERAMICS WILL PREVENT POWER LOSS BY COMBINING INSULATING ABILITY WITH HEAT RESISTANCE. SUPER-COLD, OR CRYOGENIC, MATERIALS WILL BE NEEDED TO IMPROVE CONDUCTION OF ELECTRICITY. NEW REFRACTORY METALS AND ALLOYS WILL BE NEEDED TO IMPROVE METAL HARDNESS. RESISTANCE TO DAMAGE, OR STRENGTH. NEW JERSEY, ALREADY A LEADER IN MANY OF THESE MATERIALS RESEARCH AREAS, WILL CONTINUE TO OFFER ENERGY-RELATED MATERIALS RESEARCH EMPLOYMENT.

PROFESSIONAL - found working for testing labs or companies that produce products for the energy industry:

CHEMIST
MATHEMATICIAN
PHYSICIST
CERAMIC ENGINEER
CHEMICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for testing labs or companies that produce products for the energy industry:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN
PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - found working for companies that produce products for materials testing:

BOILERMAKER
ELECTROPLATER
MACHINIST
WELDER
INSPECTOR

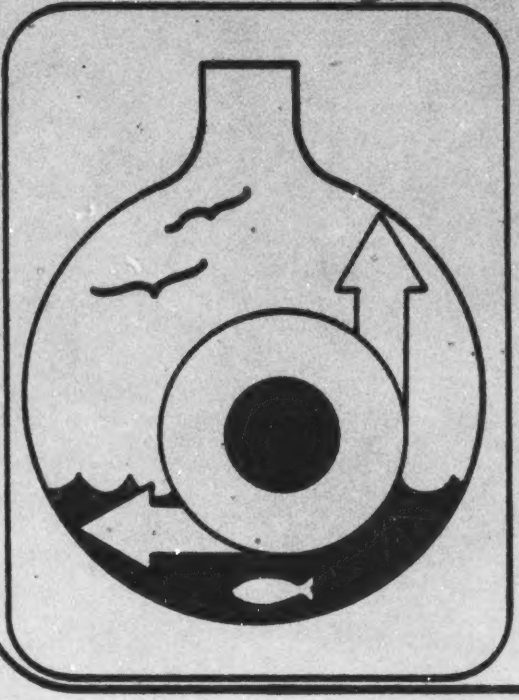
OPERATIONS ENGINEERING - may be found working for companies that have long-term testing programs:

GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at testing labs or companies that produce products for the energy industry:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

CLEAN ENERGY RESEARCH



NO METHOD OF GENERATING ENERGY IS WITHOUT EFFECT ON THE ENVIRONMENT. REDUCING THESE EFFECTS IS AN IMPORTANT PART OF ENVIRONMENTAL RESEARCH. THERE ARE SEVERAL WAYS TO CLEAN UP AN ENERGY-GENERATING PROCESS. RESEARCH ON FUEL QUALITY LEADS TO CLEANER BURNING FUELS. CURRENT EFFORTS CENTER UPON REMOVING SULFUR FROM COAL, AND IMPROVING GASOLINE. RESEARCH ON THE BURNING PROCESS AND BURNER DESIGN LEADS TO MORE COMPLETE, CLEANER BURNING. THE MOST WELL-KNOWN RESEARCH DEALS WITH CLEANING UP EXHAUST GASES. BY CONTINUING EFFORTS IN THESE AREAS, AUTOS AND COAL-FIRED POWER PLANTS WILL BECOME CLEANER. NEW JERSEY WILL CONTINUE TO BE ACTIVE IN THIS TYPE OF RESEARCH.

PROFESSIONAL - found working for government agencies, government contractors, and companies engaged in environmental development for the energy industry:

- CHEMIST
- ECONOMIST
- MATHEMATICIAN
- PHYSICIST
- CHEMICAL ENGINEER
- CIVIL ENGINEER
- ELECTRICAL ENGINEER
- MECHANICAL ENGINEER
- MINING ENGINEER
- NUCLEAR ENGINEER
- PETROLEUM ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT
- ENGINEERING ANALYST
- LAWYER

TECHNICAL - found working for government agencies, government contractors, and companies engaged in environmental development for the energy industry:

- DRAFTER
- ELECTRONICS TECHNICIAN
- ENGINEERING AND SCIENCE TECHNICIAN
- INSTRUMENT TECHNICIAN
- LABORATORY TECHNICIAN
- PROGRAMMER

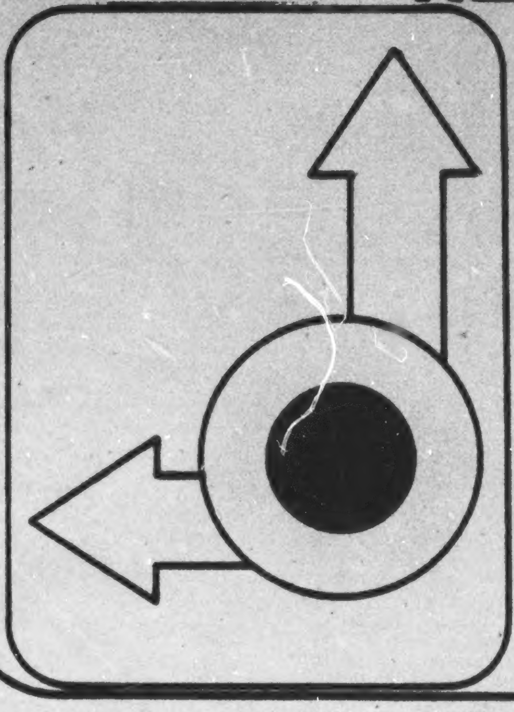
SKILLED TRADE, CRAFT, or LABOR - found working for government contractors or companies engaged in construction and testing of complete environmental systems:

- CONSTRUCTION LABORER
- ELECTRICIAN
- IRON WORKER
- OPERATING ENGINEER
- PIPEFITTER
- BOILERMAKER
- MACHINIST
- SHEET METAL WORKER
- WELDER
- ENGINE MECHANIC
- COMPANY LABORER
- INSPECTOR

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government agencies, government contractors, and companies engaged in environmental development for the energy industry:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- COMPANY SALES REPRESENTATIVE
- ENERGY ANALYST
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

ENVIRONMENTAL IMPACT RESEARCH



OUR CONCERNS ABOUT ENERGY ARE CLOSELY COUPLED WITH CONCERN FOR THE ENVIRONMENT. NO METHOD OF GENERATING OR USING ENERGY IS WITHOUT EFFECT ON THE ENVIRONMENT. CAREFUL STUDY OF THE FUTURE ENVIRONMENTAL COST OF ENERGY USE MUST BE MADE AS NEW DEVICES OR FACILITIES ARE PLANNED. WASTE HEAT AND CARBON DIOXIDE BUILD-UP ARE MAJOR CONCERNS, BUT MANY OTHER EFFECTS DUE TO OBTAINING FUEL, DISPOSING WASTE, AND TRANSMITTING POWER MUST BE STUDIED. THE DELICATE BALANCES, SO OFTEN OVERLOOKED, MUST BE EVALUATED BY SKILLED RESEARCHERS. AS NEW JERSEY RESPONDS TO THE CHANGING ENERGY OUTLOOK, WORK WILL BE PROVIDED FOR THOSE WHO WRITE THE ENVIRONMENTAL IMPACT STATEMENTS REQUIRED BY LAW.

PROFESSIONAL - found working for government agencies and consulting firms specializing in preparing environmental impact statements:

ECONOMIST
LIFE SCIENTIST
PHYSICIST
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - little technical work is found in environmental impact research.

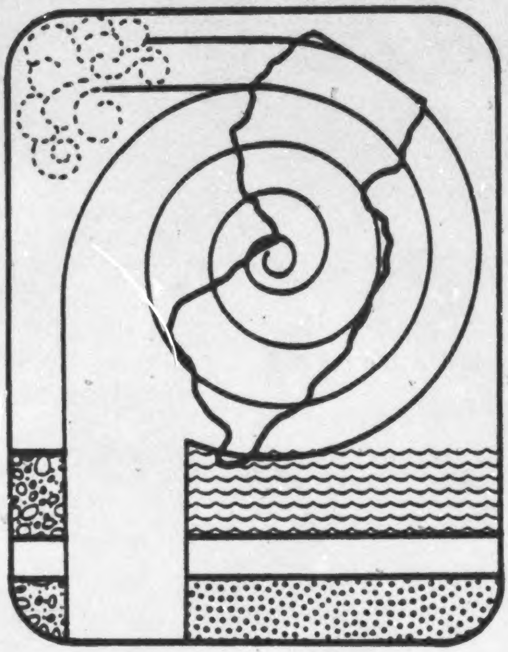
SKILLED TRADE, CRAFT, or LABOR - little trade work is found in environmental impact research

OPERATIONS ENGINEERING - little operations employment is found in environmental impact research

MANAGERIAL or ADMINISTRATIVE - found working for government agencies and consulting firms specializing in preparing environmental impact statements:

SECRETARY
TYPIST
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR

DEVELOPMENT PLANNING



DEVELOPING A NATION-WIDE SYSTEM OF ENERGY PRODUCTION AND USE WILL INVOLVE DETAILED PLANNING. THESE PLANS WILL BE BASED UPON RESEARCH IN TRENDS AND POLICY. IMPORTANT AREAS OF PLANNING INCLUDE FUEL SELECTION, WASTE DISPOSAL, AND ENERGY ALLOCATION. FUELS, UP TO NOW USED ACCORDING TO COST OR CONVENIENCE, MAY BE CHOSEN UPON AVAILABILITY, CONSERVATION, OR ENVIRONMENTAL IMPACT. WASTE MAY BECOME A RESOURCE IN THE FUTURE. ALLOCATION MAY INVOLVE RATIONING, METER LIMITING, OR CUTBACKS. MOST OF THESE DECISIONS WILL BE MADE BY LAWMAKERS UPON ADVICE OF STAFF EXPERTS. NEW JERSEY, LIKE MOST OTHER STATES, HAS WRITTEN AN ENERGY PLAN WHICH WILL BE MODIFIED AND APPLIED AS THE ENERGY PICTURE CHANGES.

PROFESSIONAL - found working for government agencies and contractors engaged in energy development planning:

ECONOMIST
MATHEMATICIAN/STATISTICIAN
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST
LAWYER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - little technical work is available in energy development planning.

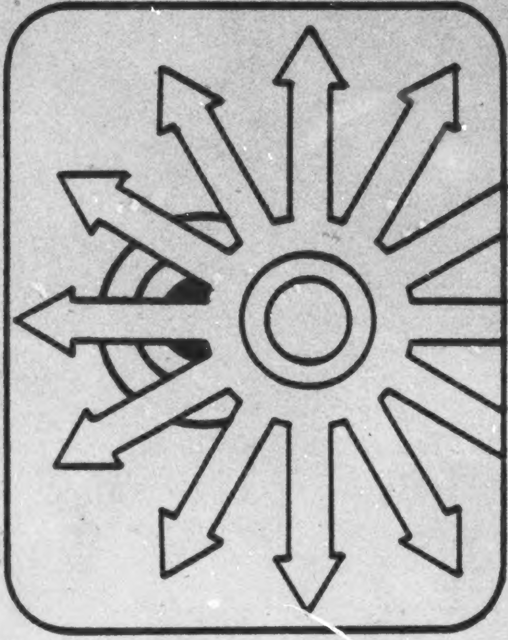
SKILLED TRADE, CRAFT, or LABOR - little trade work is available in energy development planning

OPERATIONS ENGINEERING - little operations work is available in energy development planning

MANAGERIAL or ADMINISTRATIVE - found working for government agencies and contractors engaged in energy development planning:

SECRETARY
TYPIST/STENOGRAPHER
FILE CLERK
STATISTICAL CLERK
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SYSTEMS ANALYST

ALTERNATIVES PROMOTION



AMERICANS WILL BE CHANGING THEIR ENERGY HABITS IN THE NEXT DECADE. RESEARCH INTO ENERGY ALTERNATIVES WILL ONLY BE AS USEFUL AS PEOPLE'S WILLINGNESS TO ACCEPT THEM. WE ARE ALL USED TO ENERGY CONVENIENCE; THIS HABIT WILL BE HARD TO BREAK. PROMOTING CHANGES IN ENERGY USE WILL BE IMPORTANT IN ADJUSTING TO THE NEW ENERGY PICTURE. OPTIONS SUCH AS SOLAR HEAT AND PLANNED CONSERVATION MUST BE MADE CLEAR TO THE PUBLIC. FINANCIAL BENEFITS TO ENERGY ALTERNATIVES MUST BE PROVIDED AND THE PUBLIC MADE AWARE OF THEM. ADVERTISING MUST PAY ATTENTION TO GOOD ENERGY HABITS. NEW JERSEY, A STATE OF HIGH CONSUMPTION AND FOREIGN DEPENDENCE, SHOULD ENCOURAGE EMPLOYMENT IN ALTERNATIVES PROMOTION.

PROFESSIONAL - found working for government agencies and public organizations involved in energy change:

- ECONOMIST
- LAWYER
- TEACHER
- TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - little technical work is found in alternatives promotion

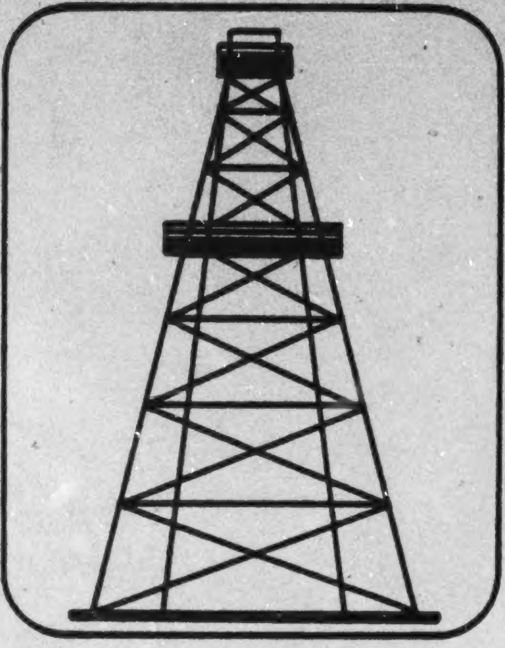
SKILLED TRADE, CRAFT, or LABOR - little trade work is found in alternatives promotion

OPERATIONS ENGINEERING - little operations work is found in alternatives promotion

MANAGERIAL or ADMINISTRATIVE - found working for government agencies and public organizations involved in energy change:

- RECEPTIONIST
- SECRETARY
- TYPIST
- ENERGY ANALYST
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

RESERVES EXPLORATION



PART OF ENERGY DEVELOPMENT IS FINDING NEW RESERVES OF CURRENTLY USED FOSSIL FUELS. CURRENT RESERVES ARE PROFITABLE TO RECOVER, MAKING ECONOMICS THE KEY FACTOR. CURRENT RESERVES INCREASE IN TWO WAYS. ONE, AS THE PRICE OF FUEL GOES UP, MORE KNOWN RESERVES BECOME ECONOMICAL TO RECOVER. TWO, AS RESEARCH IMPROVES THE TECHNOLOGY FOR RECOVERY, MORE RESERVES BECOME AVAILABLE. KNOWN RESERVES ARE ALSO INCREASING DUE TO NEW EXPLORATION METHODS, INCLUDING SATELLITE SENSING AND DEEP OCEAN SOUNDING. MOST EXPLORATION IS CARRIED OUT BY COMPANIES. NEW JERSEY HAS NO KNOWN FOSSIL FUEL RESERVES AND WILL PROVIDE LITTLE EMPLOYMENT IN THIS FIELD. OFFSHORE EXPLORATION MAY DEVELOP.

PROFESSIONAL - found working for companies concerned with fossil fuel exploration and recovery:

ECONOMIST
GEOLOGIST/GEOPHYSICIST
MINING ENGINEER
PETROLEUM ENGINEER
MARINE ENGINEER
LAWYER

TECHNICAL - found working for companies concerned with fossil fuel exploration and recovery:

DRAFTER
ELECTRONICS TECHNICIAN
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - little trade work available as most equipment is purchased:

- WELDER
- MAINTENANCE MECHANIC AND ELECTRICIAN

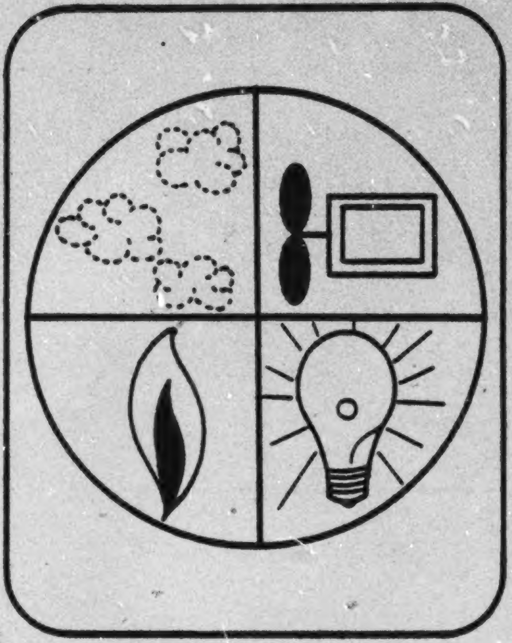
OPERATIONS ENGINEERING - found working for companies concerned with fossil fuel exploration and recovery:

- MINING EQUIPMENT OPERATOR
- WELL EQUIPMENT OPERATOR
- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for companies concerned with fossil fuel exploration and recovery:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- DISPATCHER
- ENERGY ANALYST
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR
- SYSTEMS ANALYST

FOSSIL FUEL POWER PLANT OPERATION



COAL, OIL, AND NATURAL GAS ARE CALLED FOSSIL FUELS. THESE ARE BURNED IN POWER PLANT BOILERS TO MAKE STEAM WHICH TURNS TURBINES. THESE TURBINES ARE CONNECTED TO GENERATORS WHICH MAKE ELECTRICITY. SOME WORKERS MONITOR AND CONTROL THE FLOW OF POWER IN AUTOMATIC BOILERS, PUMPS, TURBINES, GENERATORS, AND SWITCHES. OTHER WORKERS PLAY SUPPORT ROLES--IN REPAIR OF EQUIPMENT AND MAINTENANCE. OTHER PLANT EMPLOYEES MANAGE AND KEEP RECORDS. ALTHOUGH THE DEMAND FOR POWER IN NEW JERSEY IS NOW GROWING VERY SLOWLY, SOME JOBS IN FOSSIL FUEL POWER PLANTS WILL OPEN AS NEW EQUIPMENT IS INSTALLED OR AS WORKERS MOVE OR RETIRE.

PROFESSIONAL - found working at the central offices or power plants of utility companies:

- ELECTRICAL ENGINEER
- MECHANICAL ENGINEER
- ENGINEERING ANALYST
- SAFETY ENGINEER

TECHNICAL - found working for utility companies at power plants:

- ELECTRONICS TECHNICIAN
- INSTRUMENT TECHNICIAN
- LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for utility companies at power plants:

- CARPENTER
- ELECTRICIAN
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER
- INSPECTOR

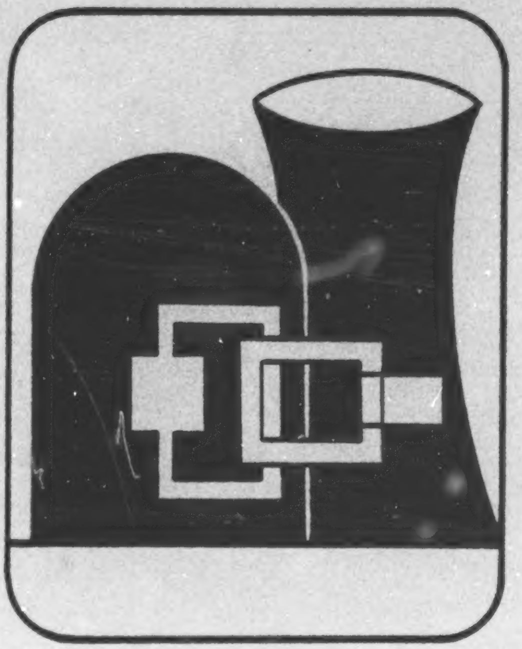
OPERATIONS ENGINEERING - found working for utility companies at power plants:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working at the central offices or power plants of utility companies:

- RECEPTIONIST
- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- STATISTICAL CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR

NUCLEAR POWER PLANT OPERATION



IN NUCLEAR POWER PLANTS, URANIUM FUEL UNDERGOES FISSION, OR ATOMIC SPLITTING. THE FUEL HEATS UP WATER IN THE REACTOR, MAKING STEAM. THIS STEAM IS USED, AS IT IS IN FOSSIL FUEL POWER PLANTS, TO TURN TURBINES WHICH ARE CONNECTED TO THE ELECTRIC GENERATORS. SOME WORKERS MONITOR THE FISSION REACTION, FLOW OF COOLING WATER, TURBINES, GENERATORS, AND SWITCHES. OTHER WORKERS PLAY SUPPORT ROLES IN EQUIPMENT REPAIR AND MAINTENANCE. MOST WORKERS ARE REQUIRED TO HAVE SPECIAL NUCLEAR TRAINING. NEW JERSEY HAS TWO OPERATING NUCLEAR PLANTS, WITH FOUR MORE SCHEDULED FOR OPERATION BEFORE 1986. JOBS FOR OPERATING PERSONNEL WILL BECOME AVAILABLE AS THESE PLANTS ARE COMPLETED.

PROFESSIONAL - found working at the central offices or power plants of utility companies:

ELECTRICAL ENGINEER
MECHANICAL ENGINEER
NUCLEAR ENGINEER
ENGINEERING ANALYST
SAFETY ENGINEER

TECHNICAL - found working for utility companies at power plants:

ELECTRONICS TECHNICIAN
INSTRUMENT TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for utility companies at power plants:

- CARPENTER
- ELECTRICIAN
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER
- INSPECTOR

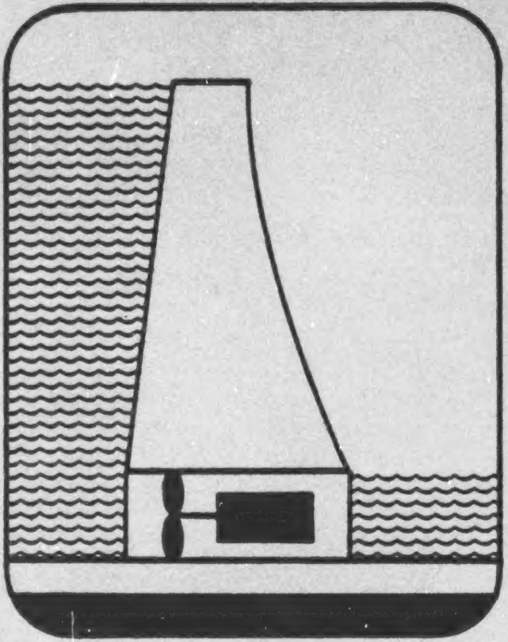
OPERATIONS ENGINEERING - found working for utility companies at power plants:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working at the central offices or power plants of utility companies:

- RECEPTIONIST
- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- STATISTICAL CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR

HYDROELECTRIC POWER PLANT OPERATION



HYDROELECTRIC POWER IS MADE BY FIRST BUILDING A DAM TO MAKE A LAKE. THE WATER IS FED THROUGH PIPES TO TURBINES WHICH ARE CONNECTED TO GENERATORS THAT MAKE ELECTRICITY. WORKERS MONITOR THE FLOW OF WATER TO THE TURBINES, TURBINE SPEED, GENERATOR OUTPUT, AND THE FLOW OF ELECTRIC POWER. OTHER WORKERS PLAY SUPPORT ROLES IN EQUIPMENT REPAIR AND MAINTENANCE OF THE DAM AND FACILITY. OTHER EMPLOYEES MANAGE AND KEEP RECORDS. NEW JERSEY HAS NO POWER PLANTS PRODUCING ONLY HYDROELECTRICITY. RECENT ATTEMPTS TO DEVELOP HYDROELECTRICITY IN NEW JERSEY HAVE BEEN UNSUCCESSFUL AND THERE WILL BE NO WORK FOR HYDROELECTRIC PLANT PERSONNEL IN THE NEAR FUTURE.

PROFESSIONAL - found working at the central offices or hydroelectric plants of utility companies:

CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST
SAFETY ENGINEER

TECHNICAL - found working for utility companies at hydroelectric plants:

ELECTRONICS TECHNICIAN
INSTRUMENT TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for utility companies at hydroelectric plants:

- CARPENTER
- ELECTRICIAN
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER
- INSPECTOR

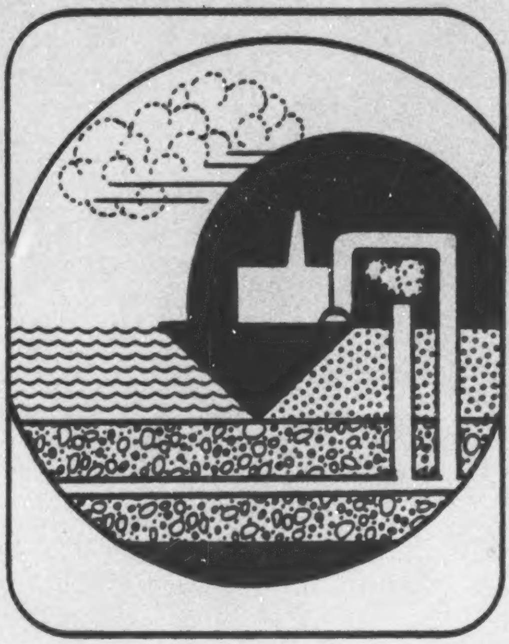
OPERATIONS ENGINEERING - found working for utility companies at hydroelectric plants:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - found working at the central offices or hydroelectric plants of utility companies:

- RECEPTIONIST
- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- STATISTICAL CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR

ALTERNATIVE POWER PLANT OPERATION



MOVING WIND, CYCLING TIDES, ROLLING WAVES, HEAT IN THE EARTH AND SOLID WASTE ALL HAVE ENERGY. THESE ALTERNATE POWER SOURCES ARE RECEIVING ATTENTION. DESIGNS FOR COMMERCIAL WIND GENERATORS HAVE BEEN DEVELOPED AND LIKELY SITES INCLUDE THE NEW ENGLAND COAST. TIDAL POWER COULD BE HARNESSED ALONG THE NORTHERN MAINE COAST. WAVE ENERGY, YET TO BE DEVELOPED, MAY BE USED OFF OUR OCEAN SHORES. GEOTHERMAL ENERGY IS NOW BEING USED IN SOME WESTERN STATES. POWER PLANTS BURNING SOLID WASTE ARE NOW BEING BUILT. NEW JERSEY IS NOT SUITED TO EITHER TIDAL OR GEOTHERMAL POWER. WIND AND WAVE POWER NEED MORE DEVELOPMENT BEFORE THEY PROVIDE PLANT OPERATION JOBS. POWER FROM BURNING SOLID WASTE IS EXPECTED TO PROVIDE AN INCREASING NUMBER OF NEW JERSEY JOBS.

PROFESSIONAL - found working at the central offices or energy facilities of utility companies:

- CIVIL ENGINEER
- ELECTRICAL ENGINEER
- MECHANICAL ENGINEER
- ENGINEERING ANALYST
- SAFETY ENGINEER

TECHNICAL - found working for utility companies at alternate source facilities:

- ELECTRONICS TECHNICIAN
- INSTRUMENT TECHNICIAN
- LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for utility companies at alternate source facilities:

- CARPENTER
- ELECTRICIAN
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER
- INSPECTOR

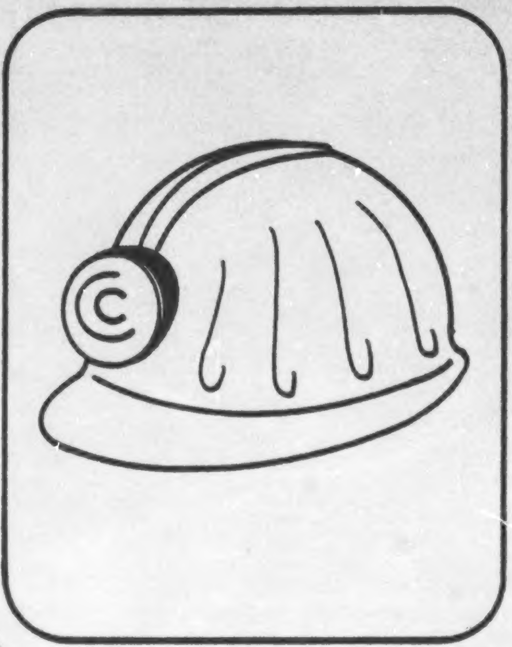
OPERATIONS ENGINEERING - found working for utilities at alternate source facilities:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - found working at the central offices or energy facilities of utility companies:

- RECEPTIONIST
- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- STATISTICAL CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR

COAL MINING



COAL, ONCE OUR NATION'S MOST IMPORTANT FUEL, WAS REPLACED BY THE CONVENIENCE OF OIL AND NATURAL GAS. NOW THAT SUPPLIES OF OIL AND GAS ARE DECREASING, COAL MIGHT AGAIN BECOME A HEAVILY-USED FUEL. COAL PRODUCTION MAY TRIPLE BY THE END OF THIS CENTURY. CURRENT MINING METHODS MUST IMPROVE AND MORE MINES MUST OPEN. COAL IS MINED EITHER UNDERGROUND USING COMPACT, POWERFUL MACHINES OR ON THE SURFACE USING LARGE SHOVELS, TRUCKS, AND GRADERS. SKILLED EQUIPMENT OPERATORS, AS WELL AS LABORERS, ARE REQUIRED FOR MINING. MOST COMPANIES PREPARE THEIR OWN COAL FOR CUSTOMERS BY WASHING, MILLING, AND SORTING. NEW JERSEY HAS NO KNOWN COAL RESERVES AND WILL NOT OFFER COAL MINING EMPLOYMENT.

PROFESSIONAL - found working in offices and at mines for coal companies:

MATHEMATICIAN/STATISTICIAN
CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
MINING ENGINEER
SAFETY ENGINEER
LAWYER

TECHNICAL - found working in offices and at mines for coal companies:

DRAFTER
LABORATORY TECHNICIAN
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - found working at coal mines for coal companies:

CARPENTER
ELECTRICIAN
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER
INSPECTOR

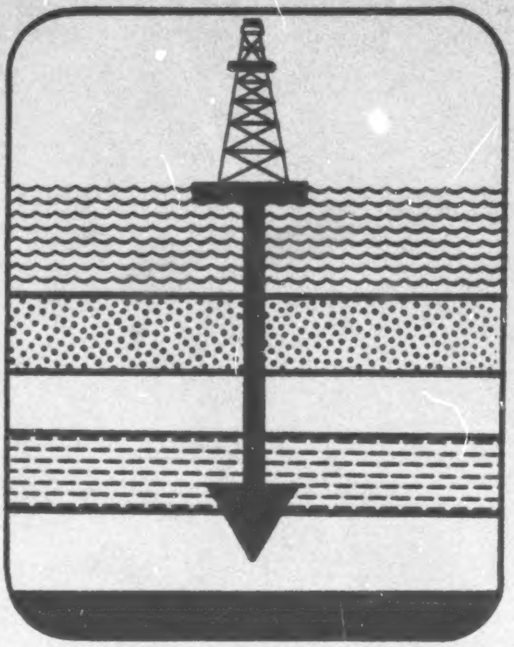
OPERATIONS ENGINEERING - found working at coal mines for coal companies:

- MINING EQUIPMENT OPERATOR
- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working in offices and at mines for coal companies:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- STATISTICAL CLERK
- COMPANY SALES REPRESENTATIVE
- DISPATCHER
- EMPLOYMENT OFFICER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR
- SYSTEMS ANALYST

WELL DRILLING



THE FIRST COMMERCIAL OIL WELL WAS DRILLED IN PENNSYLVANIA IN 1859. THIS STARTED DRILLING ACTIVITY THAT TODAY HAS SPREAD WORLD-WIDE. THE DAY OF SCRATCH-THE-SURFACE OIL IS LONG PAST IN THIS COUNTRY. WELLS ARE DRILLED THOUSANDS OF FEET INTO THE GROUND AND STAND A SMALL CHANCE OF FINDING OIL. MUCH DRILLING IS DONE OFF-SHORE. MANY WELLS ARE BEING MODIFIED TO INCREASE THEIR PRODUCTION BY USING WATER, STEAM, OR CHEMICALS. WELL WORKERS MUST BE TRAINED TO USE THE MODERN EQUIPMENT. PETROLEUM ENGINEERS MUST GET THE MOST FROM EVERY OIL DEPOSIT. NEW JERSEY DOES NOT HAVE ANY KNOWN ON-SHORE OIL. OFF-SHORE EXPLORATION WILL CONTINUE.

PROFESSIONAL - found working at the central offices of oil companies at the offices and wellsites of drilling contractors:

ECONOMIST
GEOLOGIST/GEOPHYSICIST
MATHEMATICIAN/STATISTICIAN
PETROLEUM ENGINEER
MARINE ENGINEER
SAFETY ENGINEER
LAWYER

TECHNICAL - found working at the offices and wellsites of drilling contractors:

DRAFTER
SURVEYOR

SKILLED TRADE, CRAFT or LABOR - found working at wellsites of drilling contractors:

WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

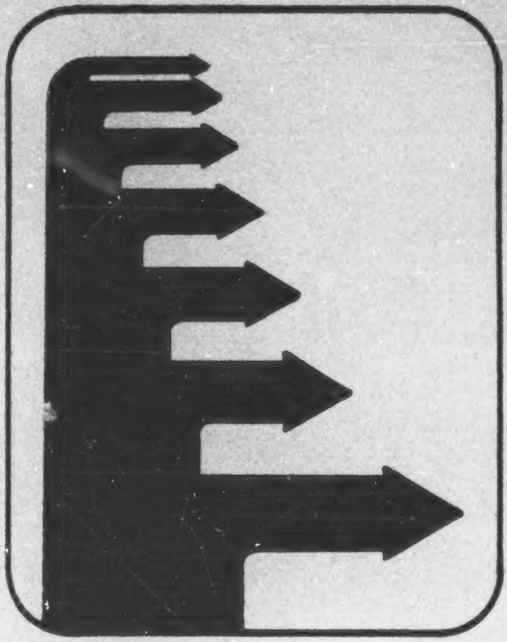
OPERATIONS ENGINEERING - found working at the wellsites of drilling contractors:

- PUMPING AND PIPELINE OPERATOR
- WELL EQUIPMENT OPERATOR
- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working at the central offices of oil companies and drilling contractors:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- STATISTICAL CLERK
- COMPANY SALES REPRESENTATIVE
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR
- SYSTEMS ANALYST

REFINERY OPERATION



CRUDE OIL IS THE RAW MATERIAL FOR MANY OF OUR MODERN FUELS AND PRODUCTS. THICK, DARK CRUDE OIL MAY BE PROCESSED TO GASSES, GASOLINE, DIESEL FUEL, JET FUEL, OILS, AND WAXES. THIS PROCESS IS CALLED REFINING. REFINERIES ARE LARGE, COMPLEX CHEMICAL PLANTS THAT HEAT, PROCESS, AND SEPARATE CRUDE OIL PRODUCTS. OPERATORS CAN CONTROL HEAT, FLOW, AND CHEMICAL REACTIONS TO MAKE THE DESIRED PRODUCTS FROM THE CRUDE OIL. MODERN REFINERIES ARE HIGHLY AUTOMATED AND REQUIRE FEW OPERATORS. PLANT MAINTENANCE PROVIDES MORE EMPLOYMENT. REFINING IS AN IMPORTANT PART OF NEW JERSEY'S ECONOMY. ALTHOUGH FUTURE EXPANSION WILL BE LIMITED, REFINERIES ARE EXPECTED TO OFFER CONTINUED EMPLOYMENT IN NEW JERSEY.

PROFESSIONAL - found working in the central offices and refineries of oil companies:

CHEMIST
ECONOMIST
MATHEMATICIAN/STATISTICIAN
PETROLEUM ENGINEER
LAWYER

TECHNICAL - found working at refineries for oil companies:

DRAFTER
LABORATORY TECHNICIAN
PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - found working at refineries for oil companies:

CARPENTER
ELECTRICIAN
WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

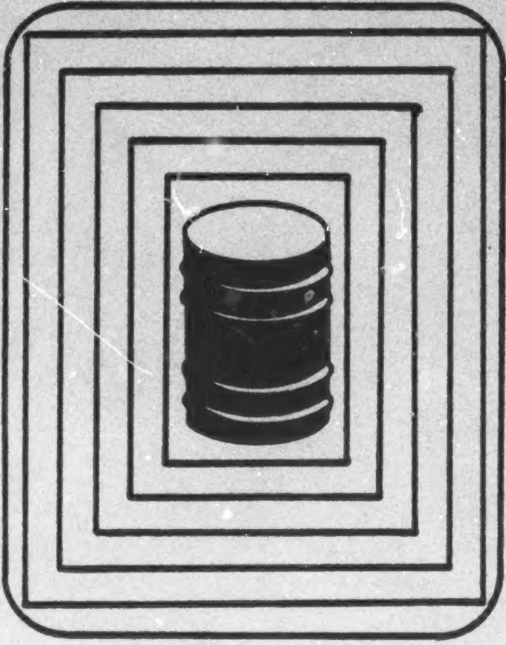
OPERATIONS ENGINEERING - found working at refineries for oil companies:

- PUMPING AND PIPELINE OPERATOR
- REFINERY OPERATOR
- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATOR - found working in central offices and refineries for oil companies:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- PUBLIC RELATIONS WORKER
- SUPERVISOR

SOLID WASTE DISPOSAL



TO MOST PEOPLE, SOLID WASTE MEANS RUBBISH OR TRASH, BUT THE PRODUCTION OF POWER MAKES ITS OWN FORM OF SOLID WASTE. THIS IS FOUND MOSTLY WITH COAL-FIRED POWER PLANTS. ASHES FROM THE COMBUSTION PROCESS AND SLUDGE, DUST, AND FILTERS FROM EXHAUST CLEAN-UP CONTRIBUTE TO SOLID WASTE FROM POWER PLANTS. SOME SUPPORT INDUSTRIES GENERATE THEIR OWN SOLID WASTE. THESE WASTES CONTAIN TOXIC MATERIALS AND MUST BE DISPOSED OF PROPERLY. WASTE MANAGEMENT IS GENERALLY HANDLED BY PLANT EMPLOYEES. AS NEW JERSEY POWER COMPANIES USE MORE COAL, MORE EMPLOYMENT WILL BECOME AVAILABLE FOR WASTE MANAGEMENT PERSONNEL.

PROFESSIONAL - little professional work found exclusively related to solid waste disposal in the energy industries.

TECHNICAL - some work found analyzing solid waste prior to disposal:

LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - some routine work found in handling solid waste:

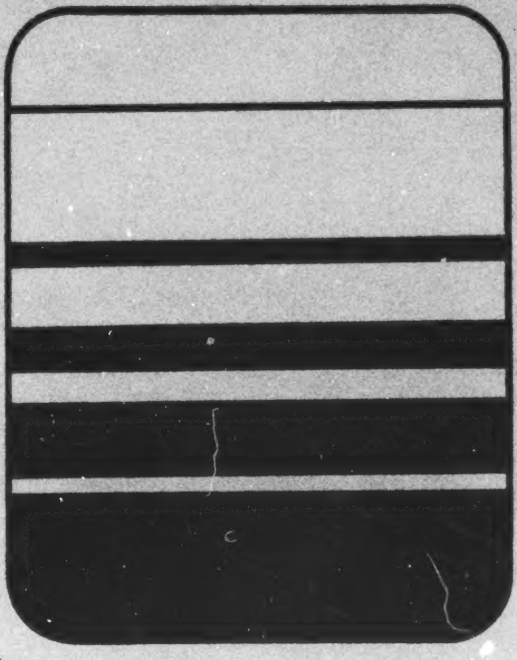
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

OPERATIONS ENGINEERING - found working for utilities and companies that manufacture energy support equipment:

GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - little work found exclusively related to solid waste disposal in the energy industries.

EXHAUST CLEANUP



WHEN FUEL IS BURNED TO RELEASE ENERGY, EXHAUST GAS IS PRODUCED. THIS IS TRUE FOR POWER PLANTS AND AUTOMOBILES, WHICH BOTH REQUIRE EXHAUST CLEANUP. METHODS OF CLEANUP FOR POWER PLANT EXHAUST DEPEND UPON THE FUEL USED. COAL, WHICH NEEDS THE GREATEST CLEANUP, WILL BE USED FOR MORE PLANTS IN THE FUTURE. THIS WILL REQUIRE A CHANGE IN CLEANUP EQUIPMENT. MOST EMPLOYMENT IS FOUND IN THE MANUFACTURE AND INSTALLATION OF EMISSIONS EQUIPMENT. SUCH EQUIPMENT IS MADE BY SEVERAL NEW JERSEY COMPANIES. AUTO EMISSIONS ARE CONTROLLED BY RECIRCULATION AND CATALYTIC CONVERSION OF EXHAUST POLLUTANTS. THESE DEVICES ARE MANUFACTURED AND INSTALLED BY THE AUTO INDUSTRY.

PROFESSIONAL - found working for companies that manufacture pollution control equipment:

CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST

TECHNICAL - found working for companies that manufacture and use pollution control equipment:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies that manufacture and use pollution control equipment:

MACHINIST
SHEET METAL WORKER
WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

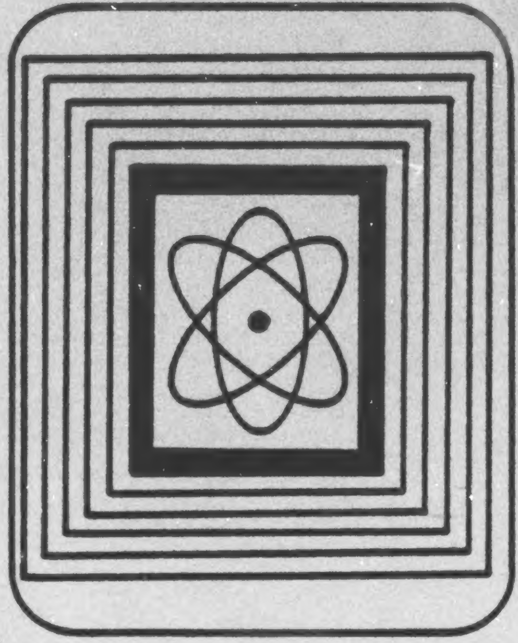
OPERATIONS ENGINEERING - found working for companies that use pollution control equipment:

GENERAL EQUIPMENT OPERATOR
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for companies that manufacture pollution control equipment:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
FILE CLERK
COMPANY SALES REPRESENTATIVE
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

NUCLEAR WASTE STORAGE AND DISPOSAL



OF THE WASTE PRODUCED BY POWER GENERATION, NUCLEAR WASTE IS THE MOST TALKED ABOUT. THERE ARE TWO TYPES OF NUCLEAR WASTE, LOW LEVEL WASTE (LLW) AND HIGH LEVEL WASTE (HLW). LLW, PRODUCED BY NUCLEAR MEDICINE AND RESEARCH AS WELL AS POWER PLANTS, IS NOT LETHAL UPON EXPOSURE. IT IS GENERALLY PACKAGED IN DRUMS AND BURIED. HLW, USED UP OR SPENT NUCLEAR FUEL, IS LETHAL. CURRENT QUESTIONS ON THE SAFETY OF DISPOSAL HAVE FORCED POWER PLANTS TO KEEP SPENT FUEL ON SITE. THE HLW QUESTION MUST BE ANSWERED SOON. NEW JERSEY DOES COLLECT AND TRANSPORT LLW, BUT NO BURIAL IS DONE IN THE STATE. HWL IS MANAGED BY POWER PLANT STAFF.

PROFESSIONAL - found working for government contractors engaged in planning nuclear waste storage:

CHEMIST
ECONOMIST
PHYSICIST
CERAMIC ENGINEER
MINING ENGINEER
NUCLEAR ENGINEER

TECHNICAL - found working for government contractors engaged in planning nuclear waste storage and for utilities managing nuclear waste:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
LABORATORY TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - little trade work available in nuclear waste disposal

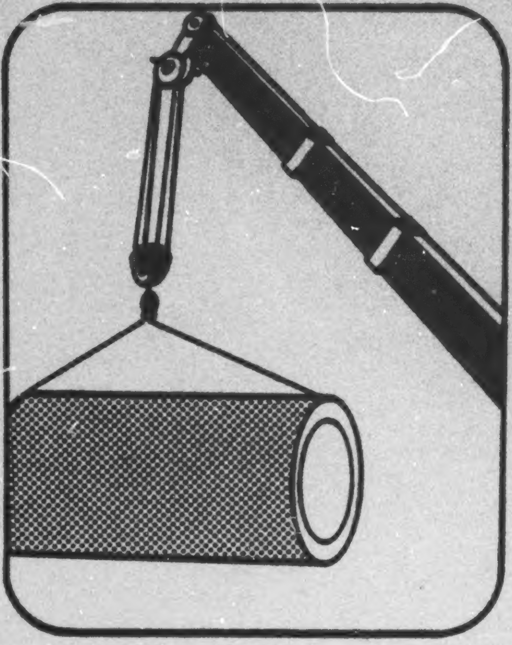
OPERATIONS ENGINEERING - found working for utilities and companies that manage nuclear waste:

GENERAL EQUIPMENT OPERATOR
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at government contractors engaged in planning nuclear waste storage:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
INDUSTRY OR GOVERNMENT ADMINISTRATOR
PUBLIC RELATIONS WORKER
SUPERVISOR

FACILITIES CONSTRUCTION



POWER GENERATION BEGINS WITH THE CONSTRUCTION OF THE POWER PLANT. THIS IS A MASSIVE UNDERTAKING, BOTH IN MONEY AND TIME. FOR INSTANCE, NUCLEAR PLANTS TODAY COST UPWARDS OF A BILLION DOLLARS AND MAY TAKE TWELVE YEARS FROM ORDER TO COMPLETION. A COMBINATION OF LOCAL AND TRAVELING LABOR IS USED, AND A WIDE VARIETY OF SKILLS ARE REQUIRED. CARPENTERS, CEMENT MASONS, IRONWORKERS, PIPEFITTERS, EQUIPMENT OPERATORS, AND LABORERS ARE AMONG THE WORKERS EMPLOYED. ALTHOUGH POWER DEMAND IS SLOWING IN THE STATE, FOUR NUCLEAR PLANTS ARE NOW BEING BUILT AND CONSTRUCTION EMPLOYMENT SHOULD BE AVAILABLE FOR THE NEXT DECADE.

PROFESSIONAL - found working for construction companies and engineering firms contracted to build energy facilities:

CHEMICAL ENGINEER
CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
NUCLEAR ENGINEER
ARCHITECT

TECHNICAL - found working for construction companies and engineering firms contracted to build energy facilities:

DRAFTER
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - found working for construction companies building energy facilities:

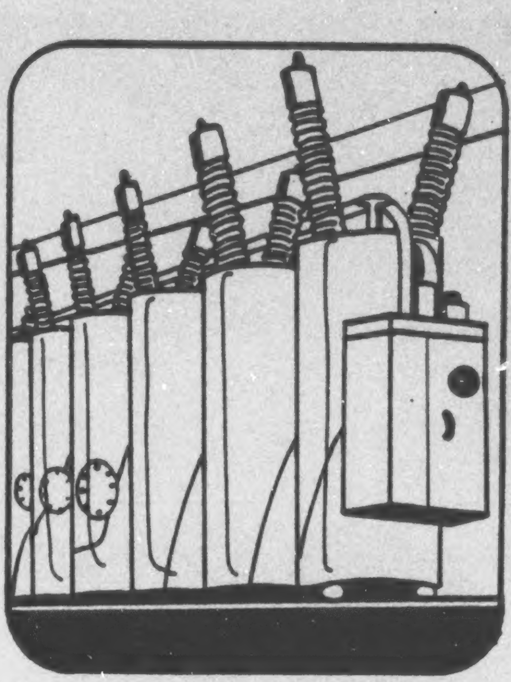
CARPENTER
CEMENT MASON/BRICKLAYER
CONSTRUCTION LABORER
ELECTRICIAN
IRON WORKER
OPERATING ENGINEER
PIPEFITTER
PLUMBER
BOILERMAKER
SHEET METAL WORKER
WELDER
INSPECTOR

OPERATION ENGINEER - little operations work available during the construction of energy facilities

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at construction companies and engineering firms contracted to build energy facilities:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
DISPATCHER
EMPLOYMENT OFFICER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

POWER EQUIPMENT



WHEN THINKING OF ENERGY, WE OFTEN THINK OF EITHER ELECTRICITY OR THE FUEL BURNED TO CREATE IT. BETWEEN THE TWO LIES A WHOLE SERIES OF ENERGY TRANSFORMING AND CONTROL EQUIPMENT. THIS INCLUDES TURBINES AND GENERATORS (USUALLY ONE UNIT), TRANSFORMERS, SWITCHES AND BREAKERS, AND CONTROL PANELS. ENERGY-RELATED OCCUPATIONS ARE FOUND IN THE CONSTRUCTION, INSTALLATION, AND SERVICE OF POWER EQUIPMENT. CONSTRUCTION WORK IS HAD AT LARGE CORPORATIONS SPECIALIZING IN POWER EQUIPMENT, BUT FOREIGN MANUFACTURERS ARE NOW CHALLENGING THE U.S. MARKET. INSTALLATION AND SERVICE IS GENERALLY PERFORMED BY SPECIALLY-TRAINED LOCAL WORKERS SUPERVISED BY COMPANY SPECIALISTS.

PROFESSIONAL - found working for companies manufacturing power equipment:

ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT

TECHNICAL - found working for companies manufacturing and installing power equipment:

DRAFTER
ELECTRONICS TECHNICIAN
INSTRUMENT TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for companies that manufacture and install power equipment and for users maintaining power equipment:

CONSTRUCTION LABORER
ELECTRICIAN
IRON WORKER
OPERATING ENGINEER
MACHINIST
SHEET METAL WORKER
WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN

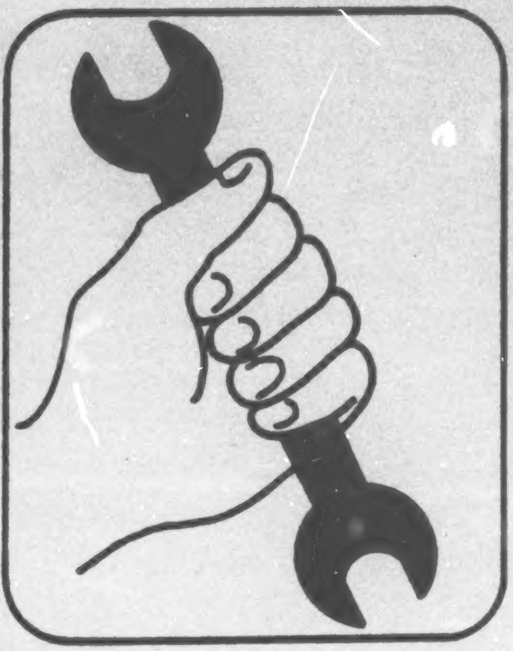
OPERATIONS ENGINEERING - limited opportunities in delivery and initial operation of power equipment:

- STATIONARY ENGINEER
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for companies that manufacture power equipment:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- COMPANY SALES REPRESENTATIVE
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

MAINTENANCE AND REPAIR STAFF



LARGE COMMERCIAL POWER PLANTS, REFINERIES, AND INDUSTRIAL POWERHOUSES REPRESENT BIG INVESTMENTS TO THE OWNERS. SUCH INVESTMENTS REQUIRE MAXIMUM USE AND LONG LIFE TO BE ECONOMICAL FOR BOTH THE INDUSTRY AND CONSUMERS. THE IMPORTANCE OF MAINTENANCE AND REPAIR IS OFTEN OVERLOOKED BY THE GENERAL PUBLIC BUT IS SERIOUSLY CONSIDERED BY PLANT OWNERS. SOME MAINTENANCE SUCH AS CLEANING, PAINTING, AND MINOR ADJUSTMENTS, IS ROUTINE AND CAN BE CARRIED OUT BY QUICKLY-TRAINED WORKERS. THE SO-CALLED PROTECTIVE MAINTENANCE MAY REQUIRE HIGHLY SKILLED WORKERS TO DEAL WITH MODERN, COMPLEX EQUIPMENT. REPAIR OCCUPATIONS ALWAYS REQUIRE TRAINING FOR SWIFT AND SURE RESULTS. NEW JERSEY IS A HIGHLY POPULATED INDUSTRIAL CENTER AND MAINTENANCE AND REPAIR OCCUPATIONS WILL CONTINUE TO OFFER EMPLOYMENT.

PROFESSIONAL - little professional work is available in maintenance and repair.

TECHNICAL - work found in routine testing of electrical and mechanical equipment at energy facilities:

ELECTRONICS TECHNICIAN
INSTRUMENT TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working at energy facilities:

CARPENTER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC
ENGINE MECHANIC
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

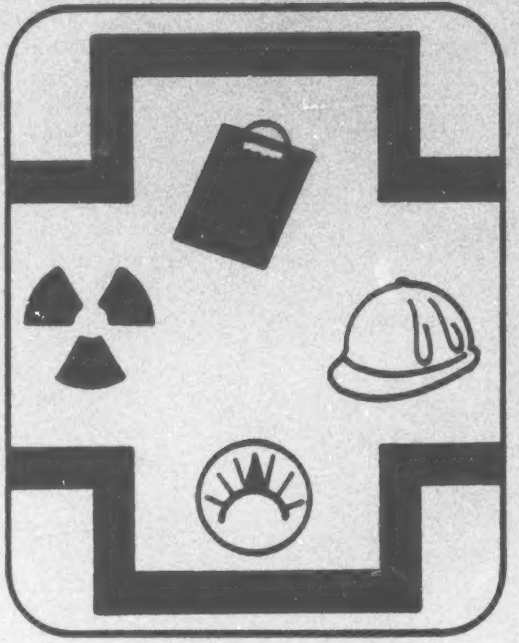
OPERATIONS ENGINEERING - may share maintenance job time with other responsibilities at energy facilities:

- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may share maintenance job time with other responsibilities at energy facilities:

- FILE CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

SAFETY STAFF



POWER PLANTS, LIKE ANY OTHER LARGE INDUSTRIAL FACILITY, HAVE WORKPLACE HAZARDS THAT MUST BE MINIMIZED TO PROTECT BOTH WORKERS AND OWNERS. STANDARDS AND PROCEDURES FOR INDUSTRIAL HYGIENE ARE JUST NOW BEING ESTABLISHED AND THE FIELD OFFERS RAPID PROFESSIONAL GROWTH. INDUSTRIAL HYGIENE SPECIALISTS ARE CONCERNED WITH NOISE, DUST, FUMES, HAZARDOUS CHEMICALS, RADIATION, HEAT, VENTILATION, AND OTHER CONDITIONS THAT AFFECT THE WORKERS. THE RADIATION SAFETY STAFF IS THE CENTER OF HEALTH AND SAFETY AT NUCLEAR POWER PLANTS. THEY PERFORM RADIATION SURVEYS AND KEEP RECORDS OF WORKER EXPOSURE. THESE STAFFS ARE MOSTLY TRAINED TECHNICIANS WORKING UNDER PROFESSIONAL DIRECTION. THE RAPID GROWTH OF THESE FIELDS SHOULD PROVIDE FUTURE EMPLOYMENT OPPORTUNITY IN NEW JERSEY.

PROFESSIONAL - found directing health and safety programs at energy facilities:

PHYSICIST
SAFETY ENGINEER

TECHNICAL - found using survey equipment at energy facilities:

INSTRUMENT TECHNICIAN

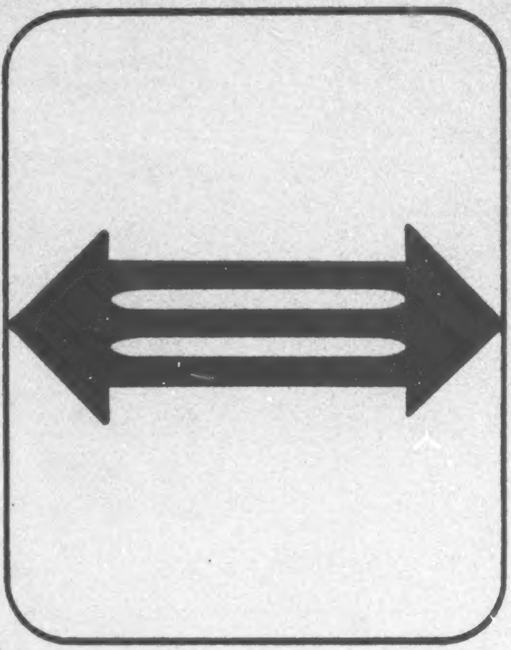
SKILLED TRADE, CRAFT, or LABOR - little trade work found in health and safety occupations

OPERATIONS ENGINEERING - little operations work found in health and safety occupations

MANAGERIAL or ADMINISTRATIVE - may share job time with other responsibilities at central offices or energy facilities:

SECRETARY
FILE CLERK
SUPERVISOR

PUBLIC RELATIONS WORKER



THERE IS A GREAT DEAL OF INTERACTION BETWEEN A LARGE ENERGY-RELATED FACILITY SUCH AS A POWER PLANT AND THE COMMUNITY IN WHICH IT IS LOCATED. SUCH FACILITIES OFTEN EMPLOY A PUBLIC RELATIONS STAFF. THESE PEOPLE ARE RESPONSIBLE FOR DEALING WITH THE MEDIA (NEWSPAPERS, RADIO, TELEVISION), PRODUCING PUBLIC-INFORMATION BROCHURES, AND MANAGING EDUCATIONAL ACTIVITIES IN COORDINATION WITH LOCAL SCHOOLS. SUCH EMPLOYEES OFTEN COUPLE DIVERSE TECHNICAL EXPERIENCE WITH GOOD COMMUNICATION SKILLS. ALTHOUGH RELATIVELY FEW OF THESE POSITIONS ARE AVAILABLE IN NEW JERSEY, THE CONTINUING NEED FOR GOOD RELATIONS WITH THE PUBLIC SHOULD PROVIDE REPLACEMENT OPPORTUNITIES AS THESE EMPLOYEES LEAVE THEIR JOBS.

PROFESSIONAL - limited work available at the central offices of utilities and energy companies:

TEACHER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - may share job time with other projects at the central offices of utilities and energy companies:

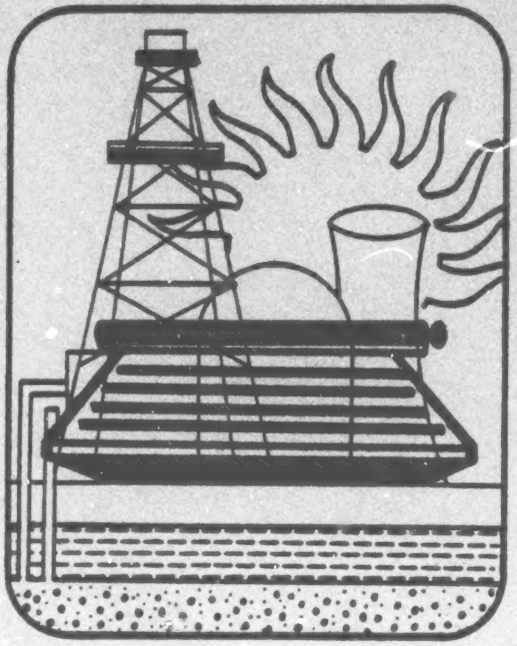
DRAFTER

SKILLED TRADE, CRAFT, or LABOR - little trade work is found in public relations

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at the central offices or energy facilities of utilities and energy companies:

RECEPTIONIST
SECRETARY
TYPIST/STENOGRAPHER
PUBLIC RELATIONS WORKER
SUPERVISOR

OFFICE AND CLERICAL STAFF



THE LARGEST SINGLE EMPLOYEE CLASSIFICATION IN NEW JERSEY IS OFFICE AND CLERICAL WORKERS. THESE WORKERS PLAY AN IMPORTANT ROLE IN ENERGY PRODUCTION. CLERKS ARE RESPONSIBLE FOR KEEPING ACCURATE FINANCIAL AND INVENTORY RECORDS OF REFINERIES, POWER PLANTS, MANUFACTURING FACILITIES, AND OTHER LARGE, ENERGY-RELATED CONCERNS. OFFICE STAFFS, PRIMARILY SECRETARIES, ARE RESPONSIBLE FOR MANAGING COMMUNICATION FOR INDUSTRY OFFICIALS. THE IMPORTANCE OF THEIR SUPPORT ROLES IN ENERGY IS CLEAR. THE WIDE RANGE OF ENERGY ACTIVITIES IN NEW JERSEY GUARANTEES A CONTINUED NEED FOR OFFICE AND CLERICAL PERSONNEL. THERE WILL CONTINUE TO BE A WIDE RANGE OF CHOICES FROM WHICH CLERICAL AND OFFICE WORKERS MAY CHOOSE JOB LOCATIONS.

PROFESSIONAL - little professional work is found in office and clerical occupations

TECHNICAL - little technical work is found in office and clerical occupations

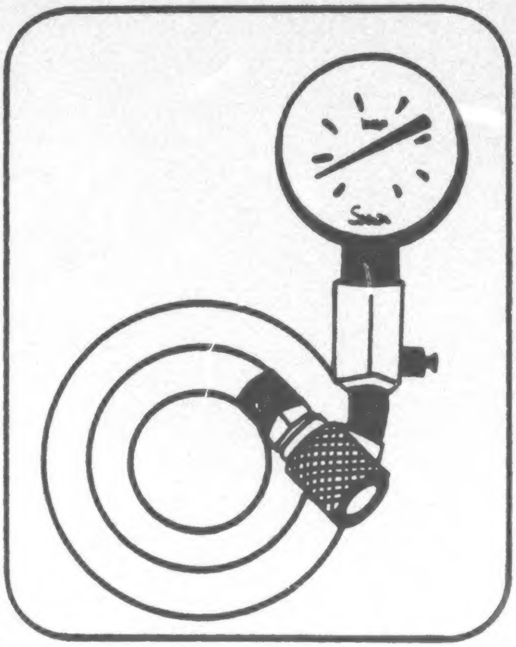
SKILLED TRADE, CRAFT, or LABOR - little trade work is found in office and clerical occupations

OPERATIONS ENGINEERING - little operations work is found in office and clerical occupations

MANAGERIAL or ADMINISTRATIVE - found working at central offices or energy facilities of utilities and energy companies:

- RECEPTIONIST
- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- STATISTICAL CLERK
- DISPATCHER
- SUPERVISOR

ENGINE MAINTENANCE



THE TRADITIONAL ROLE OF THE SERVICE STATION MECHANIC HAS BEEN TO KEEP AUTOS RUNNING WELL. TODAY, EMPHASIS ON GAS MILEAGE AND POLLUTION CONTROL HAS CHANGED THIS ROLE. IN SERVICE STATIONS AND COMPANY GARAGES, ENGINE MECHANICS ARE TUNING BOTH DIESEL AND GAS ENGINES TO MEET PERFORMANCE GOALS. ELECTRONIC EQUIPMENT HAS REPLACED THE TRAINED EAR AND MECHANICS MUST BE ABLE TO USE THIS EQUIPMENT. THE FUTURE MAY BRING MORE STRICT STANDARDS AND ALTERNATIVE AUTO FUELS THAT WILL CHALLENGE ENGINE MECHANICS TO CONTINUE DEVELOPING THEIR SKILLS AND ABILITIES. NEW JERSEY'S HEAVY PUBLIC AND COMMERCIAL ROAD USE WILL PROVIDE CONTINUED OPPORTUNITIES FOR TRAINED MECHANICS.

PROFESSIONAL - may find work with large company garages or engine manufacturers in maintenance design or education:

MECHANICAL ENGINEER
TEACHER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - may find work in large company garages or utilities in engine diagnosis:

ELECTRONICS TECHNICIAN
INSTRUMENT TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working in engine shops specializing in performance maintenance:

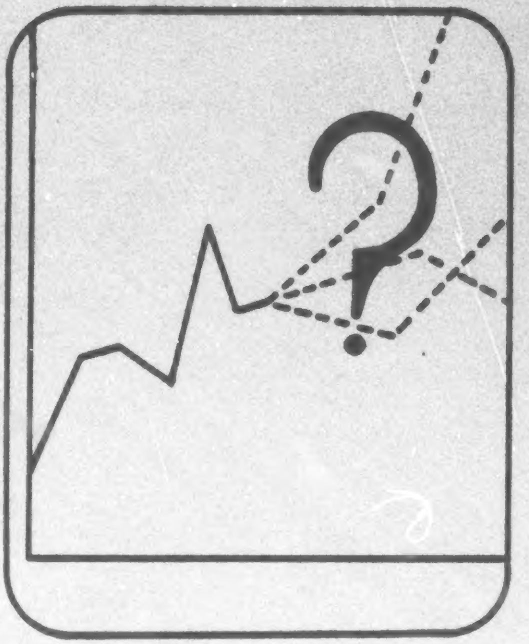
ENGINE MECHANIC

OPERATIONS ENGINEERING - little operations work found in internal combustion engine maintenance

MANAGERIAL or ADMINISTRATIVE - may find work with large company garages:

SECRETARY
FILE CLERK
SUPERVISOR

MANAGEMENT AND POLICY



AS SUPPLIES OF OIL AND GAS DWINDLE AND A SHIFT MUST BE MADE TO ALTERNATIVE FUELS, MANAGEMENT AND POLICY DECISIONS WILL PLAY A MORE IMPORTANT ROLE IN ASSURING THE BEST SUPPLY OVER THE LONGEST PERIOD. ENERGY MANAGERS WORKING FOR LARGE COMPANIES WILL BE ABLE TO USE THEIR SKILLS TO REDUCE WASTE AND ASSURE SUPPLY. ENERGY INDUSTRY OFFICIALS WILL MAKE CRITICAL FUEL AND DISTRIBUTION DECISIONS AS SUPPLY DECREASES RELATIVE TO ENERGY DEMAND. GOVERNMENT LAWMAKERS WILL POSE ALLOCATION AND SUPPLY LEGISLATION TO EITHER REQUIRE OR GIVE INCENTIVES TOWARD PLANNED ENERGY USE. NEW JERSEY'S DEPENDENCE UPON OUTSIDE ENERGY SUPPLIES WILL STIMULATE EMPLOYMENT OF ENERGY MANAGERS AND REQUIRE LOCAL AND STATE OFFICIALS WHO ARE AWARE OF ENERGY CONDITIONS.

PROFESSIONAL - found working in government and industry as policy makers:

ECONOMIST
MATHEMATICIAN/STATISTICIAN
LAWYER

TECHNICAL - may find work with consultants collecting data for energy management decisions:

INSTRUMENT TECHNICIAN
PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - little trade work is found in management and policy occupations

OPERATIONS ENGINEERING - little operations work is found in management and policy occupations

MANAGERIAL or ADMINISTRATIVE - found working in government and industry:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- STATISTICAL CLERK
- ENERGY ANALYST
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- INVESTIGATOR
- SYSTEMS ANALYST

DOMESTIC UNITS

USE OF ENERGY IN THE HOME IS THE SINGLE LARGEST ENERGY-USE CATEGORY. OF TOTAL HOME USE, SPACE HEATING ACCOUNTS FOR 70% OF CONSUMPTION AND HOT WATER TAKES ABOUT 15%. INSTALLING AND SERVICING HOME FURNACES AND WATER HEATERS SHOULD CONTINUE TO PROVIDE SKILLED TRADE EMPLOYMENT IN NEW JERSEY. INSTALLATION OF NEW UNITS IS GENERALLY DONE BY LOCAL HEATING CONTRACTORS. SERVICE MAY BE HANDLED THROUGH THESE CONTRACTORS, BUT IS OFTEN PERFORMED BY FUEL OIL DISTRIBUTORS OR PLUMBERS. SOME INSTALLATION WORK MAY BE CREATED BY REPLACEMENT OF OLD OIL OR GAS UNITS BY MORE EFFICIENT UNITS OR SOLAR-ASSISTED UNITS. MODERN, AUTOMATIC COAL-BURNING UNITS MAY SOON BE ON THE MARKET.

PROFESSIONAL - found working for companies that design and manufacture domestic energy equipment:

ELECTRICAL ENGINEER
MECHANICAL ENGINEER

TECHNICAL - found working for companies that design and manufacture domestic energy equipment:

DRAFTER

SKILLED TRADE, CRAFT, or LABOR - found working for local companies installing and servicing domestic energy equipment:

ELECTRICIAN
PLUMBER
SHEET METAL WORKER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC

OPERATIONS ENGINEERING - little operations work is found exclusively dealing with domestic energy equipment

MANAGERIAL or ADMINISTRATIVE - may find work with manufacturers or local distributors of domestic energy equipment:

SECRETARY
FILE CLERK
COMPANY SALES REPRESENTATIVE
DISPATCHER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

SOLAR FIT OR RETROFIT

THE SOLAR ENERGY INDUSTRY IS CURRENTLY IN AN EXPANSION STAGE. SOLAR SPACE HEAT IS STILL BEING DEVELOPED AND DEMONSTRATED. THE MOST ACTIVE PART OF THE INDUSTRY IS HOT WATER HEAT FOR POOLS AND HOME USE. MANY SUCH SYSTEMS ARE ALREADY DEVELOPED AND DEMONSTRATED. BOTH FEDERAL AND STATE INCENTIVES CURRENTLY ENCOURAGE HOME HOT WATER SYSTEMS IN NEW JERSEY. ALTHOUGH SUCH INCENTIVES WILL NOT LAST, INCREASING FUEL COSTS SHOULD ENCOURAGE FUTURE SOLAR INSTALLATION. ALTHOUGH MOST INSTALLATION IS DONE BY LOCAL DEALER-DISTRIBUTORS, HEATING AND FUEL COMPANIES WILL SOON BECOME MORE ACTIVE IN SOLAR ENERGY.

PROFESSIONAL - found working for solar equipment manufacturers or architectural firms:

ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ARCHITECT

TECHNICAL - found working for government contractors and consumer groups testing solar equipment or for solar equipment manufacturers:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for local companies installing and servicing solar equipment or for solar equipment manufacturers:

CONSTRUCTION LABORER
ELECTRICIAN
PLUMBER
ELECTROPLATER
SHEET METAL WORKER
WELDER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC

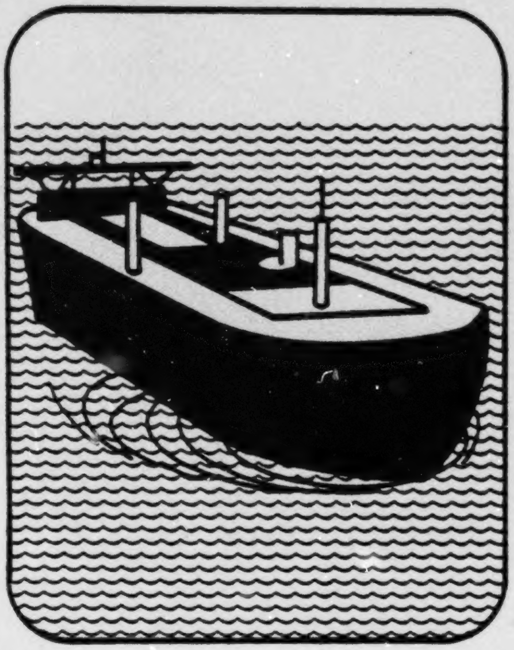
OPERATIONS ENGINEERING - may be found working for solar equipment manufacturers or distributors:

GENERAL EQUIPMENT OPERATOR
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may be found working for solar equipment manufacturers or distributors:

SECRETARY
FILE CLERK
COMPANY SALES REPRESENTATIVE
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

MERCHANT MARINE TRANSPORT



AS MANY AMERICANS KNOW TOO WELL, MUCH OF OUR OIL IS PURCHASED FROM FOREIGN COUNTRIES. NEARLY ALL OF THIS OIL COMES TO US IN TANKERS. SUPERTANKERS ARE USED TO BRING LARGE QUANTITIES OF CRUDE OIL TO DEEP WATER PORTS. THE OIL IS THEN TRANSFERRED TO SMALLER TANKERS TO BE BROUGHT TO REFINERIES. OFTEN, REFINED PRODUCTS, SUCH AS GASOLINE, ARE ALSO MOVED BY TANKER. OTHER FUELS, SUCH AS LIQUEFIED NATURAL GAS (LNG) MAY BE SHIPPED IN SPECIALLY DESIGNED TANKERS. PROFESSIONALS ARE NEEDED AS OFFICERS ON THESE SHIPS AND HARD-WORKING CREWS MUST ALSO BE HIRED. IF NOT REDUCED BY CONSERVATION OR HIGH PRICES, NEW JERSEY'S LARGE OIL IMPORTS WILL PROVIDE A HOME PORT FOR THOSE WISHING TO PURSUE MERCHANT MARINE ENERGY TRANSPORT.

PROFESSIONAL - found working for shipbuilders, oil companies, and marine engineering firms designing improved tankers and support equipment:

CIVIL ENGINEER
MECHANICAL ENGINEER
MARINE ENGINEER
SAFETY ENGINEER
TRANSPORTATION ENGINEER

TECHNICAL - may be found working for shipping and oil companies in design or routine monitoring:

DRAFTER
INSTRUMENT TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working in fabrication and maintenance for shipping and oil companies:

- ELECTRICIAN
- IRON WORKER
- OPERATING ENGINEERS
- PIPEFITTER
- WELDER
- AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER

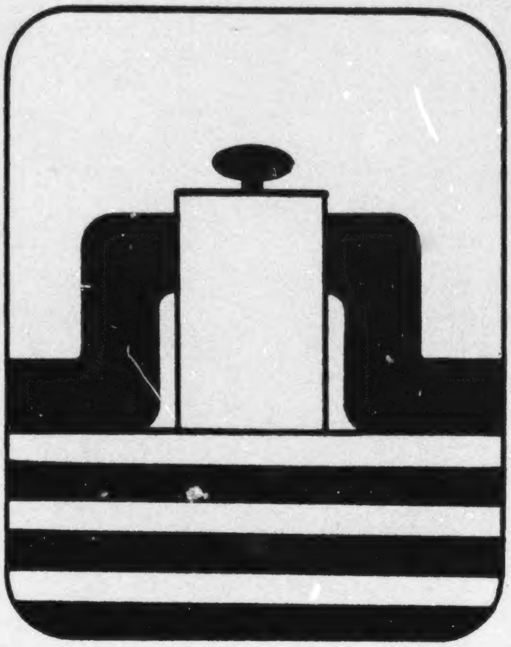
OPERATIONS ENGINEERING - found working for shipping and oil companies in routine operation:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other concerns at shipping and oil companies;

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

PIPELINE TRANSPORT



NATURAL GAS, LIQUID FUELS, AND CRUDE OIL ARE BEST TRANSPORTED OVER LONG DISTANCES BY PIPELINE. CRUDE OIL PIPELINES BRING CRUDE OIL FROM FIELDS TO REFINERIES. TRANSPORT OF REFINED FUELS TO STORAGE TANKS OR DISTRIBUTORS IS OFTEN VIA PIPELINE. NATURAL GAS IS PIPED TO TREATMENT PLANTS AND FROM THERE TO UTILITIES. AFTER STORAGE, IT IS DISTRIBUTED TO INDUSTRIES AND HOMEOWNERS USING LARGE NETWORKS OF UNDERGROUND PIPELINE. PIPELINES INCLUDE PUMPING STATIONS, VALVES, AND FLOW METERS. MUCH OF PIPELINE OPERATION IS AUTOMATIC, SO FEW JOBS IN PIPELINE OPERATION ARE AVAILABLE. MOST PIPELINE EMPLOYMENT IS IN CONSTRUCTION AND MAINTENANCE. OFFSHORE OIL AND GAS ARE BROUGHT ASHORE USING PIPELINE. NEW JERSEY JOBS IN CONSTRUCTION AND OPERATION DEPEND UPON THE SUCCESS OF OFFSHORE EXPLORATION.

PROFESSIONAL - found working for oil companies, public utilities, and pipeline construction companies on design projects:

CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
PETROLEUM ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
ENGINEERING ANALYST

TECHNICAL - found working for oil companies, public utilities, and piepline construction companies on design projects and routine inspection:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - found working for oil companies, public utilities, and pipeline construction companies on construction projects and pipeline maintenance:

CONSTRUCTION LABORER
OPERATING ENGINEER
PIPEFITTER
WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER
LINE WORKER

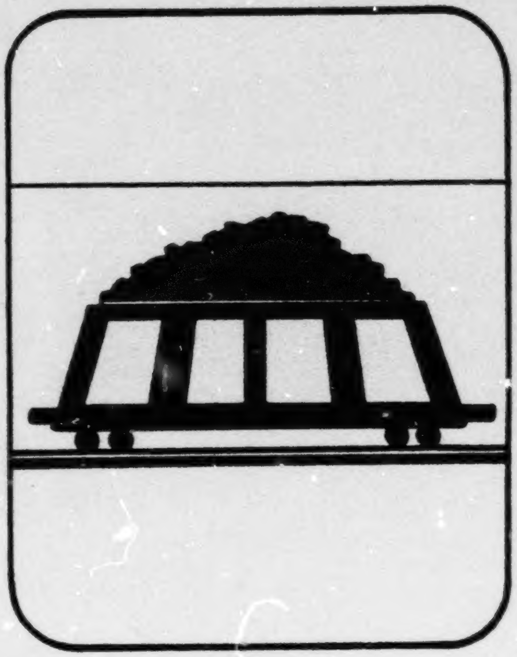
OPERATIONS ENGINEERING - found working for oil companies and public utilities operating and maintaining pipelines:

PUMPING AND PIPELINE OPERATOR
GENERAL EQUIPMENT OPERATOR

MANAGERIAL or ADMINISTRATIVE - little work found at oil companies or utilities, some work found at engineering firms and pipeline construction companies:

SECRETARY
FILE CLERK
COMPANY SALES REPRESENTATIVE
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

RAIL TRANSPORT



CURRENTLY, MUCH OF THE OVERLAND FUEL TRANSPORT IS HANDLED BY TRUCKS. AS THE GOVERNMENT PROVIDES INCENTIVES FOR RAILROAD USE, SOME OF THIS FUEL TRAFFIC WILL AGAIN BE HANDLED BY RAIL. BECAUSE REFINERIES ARE NEAR PORTS OR CRUDE OIL PIPELINES, RAIL TRANSPORT MAY BE LIMITED TO REFINED FUELS SUCH AS FUEL OIL OR GASOLINE. THE PROPOSED SWITCH TO COAL FOR ELECTRIC GENERATION MAY BE THE BIGGEST FACTOR IN INCREASED RAIL USE. CURRENT PRACTICE OF PROVIDING SPECIAL COAL TRAINS FROM THE MINE TO LARGE CONSUMERS WOULD THEN INCREASE. ALTHOUGH MOST RAILROAD WORK IS NOT DIRECTLY RELATED TO ENERGY, HIGH DIESEL FUEL PRICES AND POSSIBLE CONVERSION OF NEW JERSEY POWER PLANTS TO COAL MAY PROVIDE SOME ENERGY-RELATED RAILROAD JOBS.

PROFESSIONAL - may be found working for rail car builders, railroad companies, or energy companies designing better rail cars and support equipment:

CIVIL ENGINEER
MECHANICAL ENGINEER
SAFETY ENGINEER
TRANSPORTATION ENGINEER

TECHNICAL - little technical work is available in railroad transport.

SKILLED TRADE, CRAFT or LABOR - found working for railroad companies or energy companies maintaining rail cars and support equipment:

MACHINIST
WELDER
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER

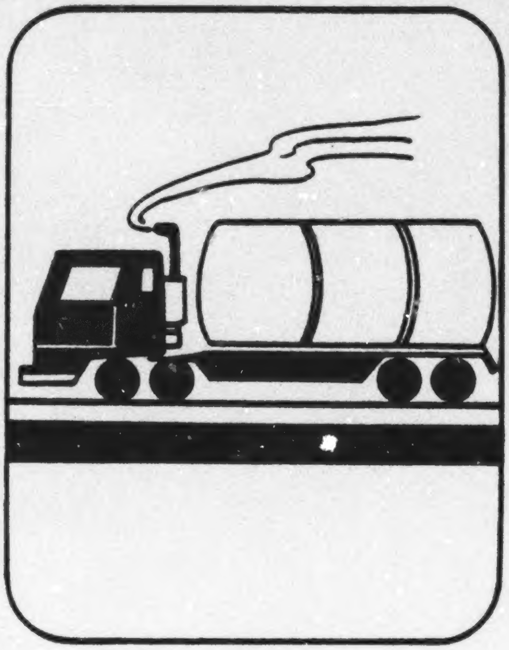
OPERATIONS ENGINEERING - may be found working for railroad companies or energy companies operating support equipment:

GENERAL EQUIPMENT OPERATOR

MANAGERIAL or ADMINISTRATIVE - little work found dealing only with rail energy transport - may share job time with other rail concerns:

SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
FILE CLERK
DISPATCHER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

ROADWAY TRANSPORT



MUCH OF THE FUEL THAT IS DISTRIBUTED ON STATEWIDE AND LOCAL LEVELS MOVES BY TRUCK. INDEPENDENT OWNER-OPERATORS ARE CONTRACTED BY OIL COMPANIES TO DELIVER GASOLINE TO LOCAL STATIONS IN TRACTOR-TRAILER TANKERS. FUEL OIL COMPANIES HAVE THEIR OWN HEAVY TANKERS TO MOVE HOME HEATING OIL TO LOCAL STORAGE TANKS. FROM THERE IT IS MOVED BY THE FAMILIAR DELIVERY TRUCKS TO HOME STORAGE TANKS. LIQUEFIED NATURAL GAS AND PROPANE IS MOVED TO LOCAL DISTRIBUTORS IN PRESSURIZED TANK TRUCKS. IT IS THEN PUT IN SMALLER CONTAINERS AND MOVED IN FLATBED LIFT TRUCKS AS BOTTLED GAS. THESE DELIVERY PATTERNS ARE WELL ESTABLISHED IN NEW JERSEY AND CONTINUED EMPLOYMENT IN TRUCK TRANSPORT IS LIKELY FOR THE NEAR FUTURE.

PROFESSIONAL - may be found working for truck builders or transportation companies designing better vehicles and support equipment:

MECHANICAL ENGINEER
SAFETY ENGINEER
TRANSPORTATION ENGINEER

TECHNICAL - little technical work is available in roadway transport.

SKILLED TRADE, CRAFT, or LABOR - found working for transportation companies, oil companies, and local distributors maintaining vehicles:

MACHINIST
WELDER
ENGINE MECHANIC
COMPANY LABORER OR MAINTENANCE WORKER

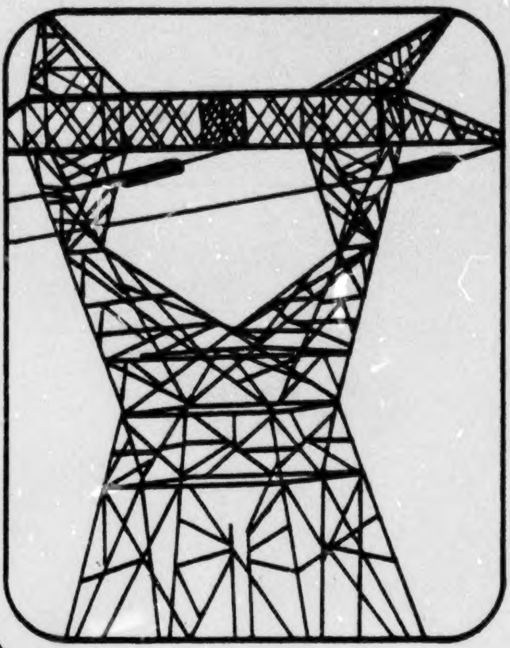
OPERATIONS ENGINEERING - found driving for transportation companies, oil companies, and local distributors and as independent owner-operators:

- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for transportation companies, oil companies, and local distributors:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

TRANSMISSION LINE



ELECTRICITY GENERATED BY UTILITIES IS OFTEN USED MANY MILES FROM THE POWER PLANT. SINCE TRANSMISSION OF ELECTRICAL POWER IS BEST DONE AT HIGH VOLTAGE, LINES ARE USUALLY EITHER 115KV (THOUSAND VOLTS), 230KV, OR 500KV. THESE LINES ARE CARRIED BY THE FAMILIAR METAL TOWERS THAT CRISSCROSS THE LAND. TRANSMISSION LINES ARE ORGANIZED INTO GRIDS, WHERE THE FLOW OF POWER IS CONTROLLED AT CENTRAL SWITCHBOARDS. FEW WORKERS ARE NEEDED TO CONTROL THE FLOW OF POWER IN THESE HIGHLY AUTOMATED GRIDS. MOST EMPLOYMENT IS FOUND IN CONSTRUCTION AND MAINTENANCE OF THE TRANSMISSION LINES. TRANSMISSION LINE EMPLOYMENT IN NEW JERSEY SHOULD FOLLOW GENERAL GROWTH IN POWER DEMAND.

PROFESSIONAL - found working for utilities and contractors designing transmission lines and transmission equipment:

- CIVIL ENGINEER
- ELECTRICAL ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT

TECHNICAL - found working for utilities and contractors testing power transmission equipment and constructing transmission lines:

- DRAFTER
- ELECTRONICS TECHNICIAN
- ENGINEERING AND SCIENCE TECHNICIAN
- SURVEYOR

SKILLED TRADE, CRAFT or LABOR - found working for utilities and contractors constructing transmission lines and maintaining existing lines:

- CONSTRUCTION LABORER
- IRON WORKER
- OPERATING ENGINEER
- WELDER
- LINE WORKER

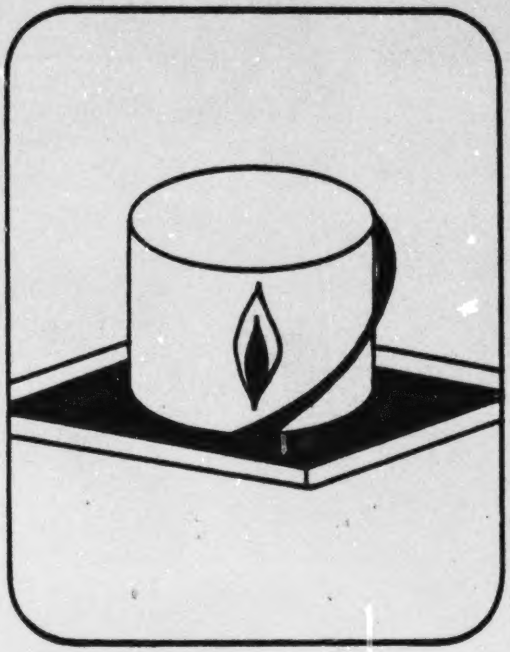
OPERATIONS ENGINEERING - found working at transmission control panels and power substations:

- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - little work found at utilities limited only to transmission lines; some work found with companies that construct transmission lines:

- SECRETARY
- FILE CLERK
- COMPANY SALES REPRESENTATIVE
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

FUEL STORAGE OPERATIONS



AS ENERGY SUPPLY AND DEMAND VARY, IT IS IMPORTANT TO STORE FUELS SUCH AS COAL, HEATING OIL, GASOLINE, AND NATURAL GAS. PRICE INCREASES, LABOR DISPUTES, FOREIGN EMBARGOES, AND BAD WEATHER CAN ALL INTERRUPT SUPPLY. CRUDE OIL AND REFINED PRODUCTS ARE STORED AT REFINERIES AND NATURAL GAS IS STORED BY PUBLIC UTILITIES. DISTRIBUTORS OFTEN STORE FUEL SUPPLIES TO MAKE UP FOR VARIATION IN DELIVERY SCHEDULES. COAL PRODUCERS AND CONSUMERS HAVE LARGE STOCKPILES ON HAND. STORAGE OF LIQUID FUELS AND GAS INVOLVE LITTLE LABOR WHILE COAL STORAGE OPERATIONS DEPEND UPON EQUIPMENT OPERATORS. REFINERY AND LOCAL STORAGE IN NEW JERSEY SHOULD FOLLOW ENERGY TRENDS, BUT REPACEMENT POSITIONS MAY PROVIDE THE ONLY EMPLOYMENT OPPORTUNITIES.

PROFESSIONAL - found working for firms designing and building fuel storage facilities and for energy companies planning fuel storage:

- CIVIL ENGINEER
- MECHANICAL ENGINEER
- MINING EQUIPMENT
- NUCLEAR ENGINEER

TECHNICAL - may find work for firms designing and building fuel storage facilities:

- DRAFTER
- ENGINEERING AND SCIENCE TECHNICIAN
- INSTRUMENT TECHNICIAN
- SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - found working for energy companies maintaining energy storage facilities:

- PIPEFITTER
- MACHINIST
- WELDER
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER

OPERATIONS ENGINEERING - found working for energy companies operating fuel storage facilities:

- MINING EQUIPMENT OPERATOR
- PUMPING AND PIPELINE OPERATOR
- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - may share job time with other responsibilities at energy companies:

- SECRETARY
- FILE CLERK
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

FUEL OIL AND NATURAL GAS SERVICE

ALTHOUGH FUEL OIL AND NATURAL GAS FOLLOW A LONG AND COMPLEX ROUTE ON THE WAY FROM THE WELL TO THE CONSUMER, MOST HOMEOWNERS DEAL ONLY WITH THE LOCAL FUEL OIL DISTRIBUTOR OR THE NATURAL GAS UTILITY. LOCAL FUEL OIL DISTRIBUTORS MOVE STOCK FROM THE REFINERY TO THEIR LOCAL TANKS AND FROM THERE DELIVER THE FUEL TO THE CUSTOMERS. THEIR SERVICE STAFF WILL INSPECT, MAINTAIN, AND REPAIR OIL BURNERS. OFTEN SUCH COMPANIES DELIVER BOTTLED GAS FOR COOKING. LOCAL GAS COMPANIES BUY GAS FROM PIPELINE COMPANIES, FEEDING IT INTO LOCAL GAS LINES OR TEMPORARY STORAGE TANKS. THEIR SERVICE STAFF WILL INSPECT, MAINTAIN, AND REPAIR GAS BURNERS. LOCAL EMPLOYMENT SHOULD GROW WITH ENERGY DEMAND IN NEW JERSEY'S FUEL OIL AND NATURAL GAS COMPANIES.

PROFESSIONAL - little professional work available with local fuel oil distributors; some work found with larger natural gas utilities:

CIVIL ENGINEER
MECHANICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
LAWYER

TECHNICAL - some work found with local fuel oil distributors or natural gas utilities:

DRAFTER
INSTRUMENT TECHNICIAN
PROGRAMMER
SURVEYOR

SKILLED TRADE, CRAFT, or LABOR - found working for local fuel oil distributors or natural gas utilities in customer service or equipment maintenance:

PLUMBER
WELDER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC
ENGINE MECHANIC
MAINTENANCE MECHANIC AND ELECTRICIAN
COMPANY LABORER OR MAINTENANCE WORKER
LINE WORKER

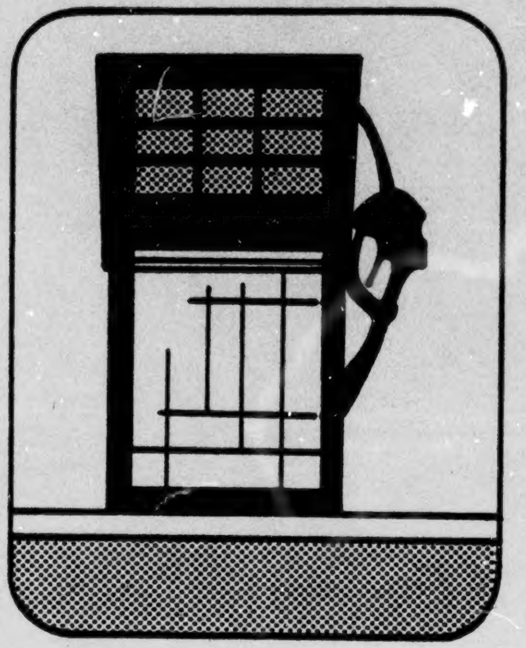
OPERATIONS ENGINEERING - found working for fuel oil distributors or natural gas utilities operating distribution equipment:

PUMPING AND PIPELINE OPERATOR
GENERAL EQUIPMENT OPERATOR
STATIONARY ENGINEER
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for fuel oil distributors or natural gas utilities in scheduling, billing, and collection:

RECEPTIONIST
SECRETARY
BUDGET AND MANAGEMENT ACCOUNTANT
FILE CLERK
STATISTICAL CLERK
COMPANY SALES REPRESENTATIVE
DISPATCHER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
INVESTIGATOR
SUPERVISOR

GASOLINE STATIONS



FAMILIAR FACES IN OUR WEEKLY ENERGY USE ARE THOSE OF THE SERVICE STATION OWNER, MECHANICS, AND ATTENDANT. ATTENDANTS PUMP GASOLINE AND PERFORM COURTESY SERVICES SUCH AS WASHING WINDSHIELDS AND CHECKING OIL. THE STATION OWNER ARRANGES SERVICE SCHEDULES AND EMPLOYS MECHANICS TO KEEP AUTOS RUNNING WELL. AUTO SERVICE MAY CENTER MORE ON EFFICIENCY TUNING AND ENGINE MODIFICATION FOR OTHER FUELS AS GASOLINE SUPPLIES BECOME LIMITED. STATION ATTENDANTS, MECHANICS, AND OWNERS PLAY A VERY PERSONAL ROLE IN THE PUBLIC'S ENERGY PICTURE. THEIR GOOD ATTITUDE AND ABILITY TO MAXIMIZE GAS MILEAGE MAY HELP CONSUMERS THROUGH PERIODIC GAS SHORTAGES. NEW JERSEY'S HIGH AUTO USE SHOULD PROVIDE CONTINUED EMPLOYMENT IN LOCAL SERVICE STATIONS.

PROFESSIONAL - little professional work is available at service stations.

TECHNICAL - may be found working at larger service stations with modern tune-up equipment:

INSTRUMENT TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working at service stations or large auto service shops:

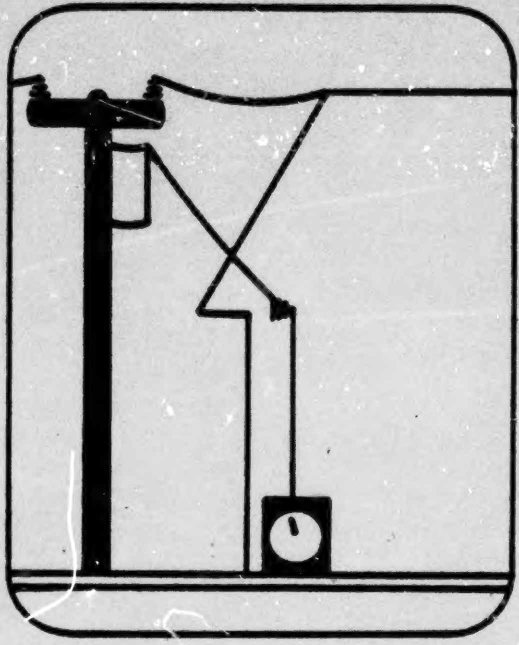
MACHINIST
ENGINE MECHANIC
COMPANY LABORER OR MAINTENANCE WORKER

OPERATIONS ENGINEERING - little operations work is found at service stations.

MANAGERIAL or ADMINISTRATIVE - some work may be found at larger service garages:

SECRETARY
FILE CLERK
SUPERVISOR

ELECTRIC SERVICE



UNLIKE MAJOR OIL AND GAS COMPANIES, ELECTRIC UTILITIES CONTROL THE FLOW OF ENERGY FROM WHEN IT IS GENERATED UNTIL IT IS USED BY THE CUSTOMER. MOST OF THEIR POWER LINES ARE NOT HIGH VOLTAGE TRANSMISSION LINES: THEY ARE THE POWER LINES THAT ARE STRUNG ON "TELEPHONE POLES" OR LAID IN UNDERGROUND CONDUITS. AUXILLIARY EQUIPMENT INCLUCES LOCAL SWITCHING STATIONS, POLE-MOUNTED TRANSFORMERS, AND ELECTRIC METERS. POWER COMPANY SERVICE WORKERS CONNECT SERVICE TO NEW INDUSTRIES AND HOMES, CLEAR TREES FROM POWER LINES, AND MAKE EMERGENCY REPAIRS AFTER STORMS. OTHER WORKERS KEEP RECORDS, HANDLE BILLING, AND READ METERS. CONTINUED GROWTH IN NEW JERSEY ELECTRIC POWER DEMAND SHOULD PROVIDE EMPLOYMENT OPPORTUNITIES FOR THOSE INTERESTED IN ELECTRIC UTILITY WORK.

PROFESSIONAL - found working for electric utilities on power distribution matters:

- ELECTRICAL ENGINEER
- ENGINEER OF SYSTEM DEVELOPMENT
- LAWYER

TECHNICAL - found working for electric utilities:

- DRAFTER
- ELECTRONICS TECHNICIAN
- ENGINEERING AND SCIENCE TECHNICIAN
- INSTRUMENT TECHNICIAN
- PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - found working for electric utilities in repair and maintenance of lines and distribution equipment:

- ELECTRICIAN
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER
- LINE WORKER

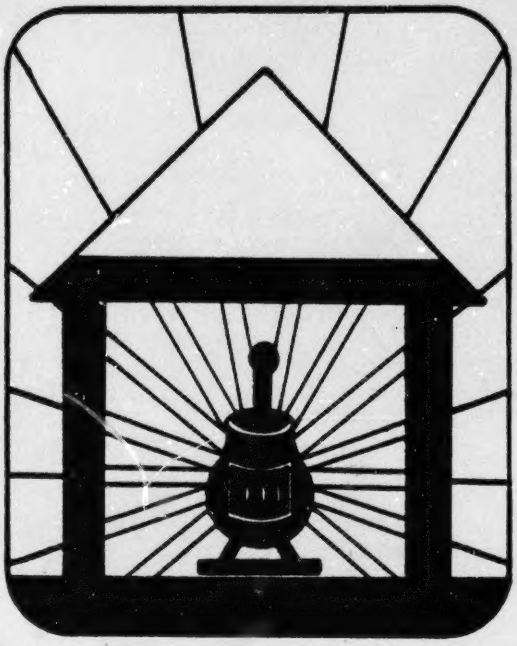
OPERATIONS ENGINEERING - found working for electric utilities in repair and maintenance of lines and distribution equipment:

- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - found working for electric utilities in scheduling, billing, and collection:

- RECEPTIONIST
- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- STATISTICAL CLERK
- COMPANY SALES REPRESENTATIVE
- DISPATCHER
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- INVESTIGATOR
- SUPERVISOR
- SYSTEMS ANALYST

INSULATION



THE USE OF WALL AND CEILING INSULATION HAS LONG BEEN KNOWN FOR COMFORTABLE LIVING. THE EMPHASIS OF ITS IMPORTANCE HAS RECENTLY SHIFTED FROM COMFORT TO ECONOMY. FUTURE FUEL SHORTAGES MAY CAUSE A SHIFT FROM PRESENT HEATING FUELS TO ELECTRICITY WHICH DEMANDS THE BEST INSULATION. ALTHOUGH INSULATING EXISTING HOMES MAY RESULT IN SOME DECREASE IN RESIDENTIAL FUEL USE, IMPROVED INSULATION FOR NEW HOMES MAY CUT RESIDENTIAL FUEL USE BY UP TO 25%. A WIDE VARIETY OF INSULATION TYPES SUCH AS BLANKETS OR BATTS, LOOSE FILL, BLOWN FILL, AND RIGID SHEETS ARE AVAILABLE TO FIT MOST NEEDS. NEW JERSEY'S HIGH POPULATION DENSITY WILL PROVIDE A MARKET FOR INSULATION WORKERS.

PROFESSIONAL - found working for architectural firms designing well-insulated buildings:

ARCHITECT

TECHNICAL - little technical work found in wall and ceiling insulation.

SKILLED TRADE, CRAFT, or LABOR - found working for construction companies or insulation contractors installing insulation:

CARPENTER
CONSTRUCTION LABORER
INSULATION WORKER

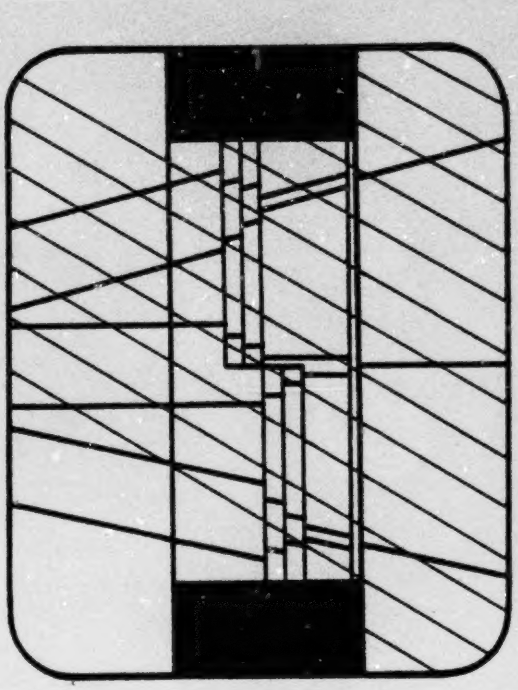
OPERATIONS ENGINEERING - may be found working for insulation contractors or distributors delivering insulation:

TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may share job time with other responsibilities at construction companies or insulation contractors:

SECRETARY
FILE CLERK
DISPATCHER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

WINDOW MATERIALS



MOST OF THE HEAT LOSS IN UNINSULATED HOMES RESULTS FROM POORLY INSULATED WINDOW AREAS. STANDARD SINGLE-PANE, DOUBLE SASH WINDOWS ARE THE POOREST INSULATORS. ALTHOUGH CUTTING WARM WEATHER ENERGY REQUIREMENTS BY PROVIDING VENTILATION, THESE OPENING TYPE WINDOWS LEAVE CRACKS THAT ALLOW PASSAGE OF AIR. THIS CAN SIMPLY BE AVOIDED BY CAULKING THE CRACKS, OR A BETTER SOLUTION WOULD BE TO ADD STORM WINDOWS. THIS ALSO REDUCES HEAT CONDUCTION THROUGH THE WINDOW BY ADDING A LAYER OF GLASS AND PROVIDING A DEAD AIR SPACE. IN ADDITION, NEW MATERIALS SUCH AS REFLECTIVE COATINGS, HEAT MIRRORS, AND OPTICAL SHUTTERS MAY BRING ABOUT ADDITIONAL ENERGY SAVINGS. THE TREND TOWARDS ENERGY CONSERVATION, COUPLED WITH IMPROVED BUILDING CODES SHOULD PROVIDE EMPLOYMENT WITH NEW JERSEY STORM WINDOW CONTRACTORS.

PROFESSIONAL - found working for architectural firms designing buildings; also for window manufacturers devising new window materials:

CERAMIC ENGINEER
ARCHITECT

TECHNICAL - may be found working for architectural firms or window manufacturers:

DRAFTER

SKILLED TRADE, CRAFT, or LABOR - found working for storm window contractors and construction companies installing windows:

CARPENTER
CONSTRUCTION LABORER

OPERATIONS ENGINEERING - may be found working for window manufacturers, construction companies, or storm window contractors deliver windows:

TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may share job time with other responsibilities at construction companies or storm window contractors:

SECRETARY
FILE CLERK
DISPATCHER
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

GOVERNMENT INSPECTION

A WIDE RANGE OF ENVIRONMENTAL, NUCLEAR, AND SAFETY REGULATIONS ARE CURRENTLY APPLIED TO ENERGY-RELATED INDUSTRIES AND THE PUBLIC. THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY (EPA) HAS ESTABLISHED GUIDELINES ON POLLUTANTS WHICH THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) MONITORS AND ENFORCES. THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS GUIDELINES ON HEALTH AND SAFETY IN THE WORKPLACE. THE NUCLEAR REGULATORY COMMISSION (NRC) REGULATES ALL PHASES OF NUCLEAR ENERGY PRODUCTION. EVEN NEW JERSEY DRIVERS MUST COMPLY WITH EMISSION STANDARDS ENFORCED BY STATE AUTO INSPECTION. THE NEED FOR PEOPLE TO INSPECT AUTOS, INDUSTRIES, AND POWER PLANTS AND TO ENFORCE THESE REGULATIONS WILL GROW AS ENERGY USE INCREASES AND AS A WIDER RANGE OF STANDARDS ARE APPLIED.

PROFESSIONAL - found working for government agencies and private industries as environmental and safety specialists:

CHEMIST
MATHEMATICIAN/STATISTICIAN
PHYSICIST
SAFETY ENGINEER
LAWYER

TECHNICAL - found working for government agencies and private industries as monitoring and sampling technicians:

INSTRUMENT TECHNICIAN
LABORATORY TECHNICIAN
PROGRAMMER

SKILLED TRADE, CRAFT, or LABOR - may find work in industries making adjustments to equipment to meet standards:

- MACHINIST
- ENGINE MECHANIC
- MAINTENANCE MECHANIC AND ELECTRICIAN
- COMPANY LABORER OR MAINTENANCE WORKER

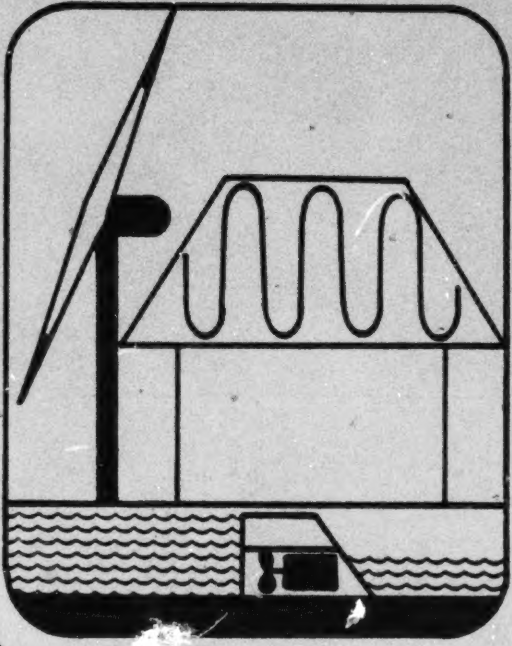
OPERATIONS ENGINEERING - may find work operating or monitoring pollution control equipment:

- GENERAL EQUIPMENT OPERATOR
- STATIONARY ENGINEER

MANAGERIAL or ADMINISTRATIVE - found working for government agencies dealing with inspection and enforcement:

- SECRETARY
- TYPIST/STENOGRAPHER
- FILE CLERK
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- INVESTIGATOR

ON-SITE GENERATION



A PRIMARY GOAL OF THE CONSERVATION EFFORT IS TO REDUCE DEMAND FOR LIMITED FOSSIL FUELS. ENERGY GENERATED FROM RENEWABLE RESOURCES AT HOME OR AT THE WORKPLACE MAY PROVIDE SOME REDUCTION. CARE MUST BE TAKEN THAT THIS "EXTRA" ENERGY DOES NOT INCREASE OVERALL USE. METHODS THAT MAY BE APPLIED TODAY ARE SOLAR HEAT FOR HOT WATER OR SPACE HEAT, WIND TURBINES FOR ELECTRICAL GENERATION, AND SMALL HYDROELECTRIC UNITS. THE FUTURE MAY BRING SOLAR ELECTRIC PANELS, METHANE FROM WASTE FOR KITCHEN NEEDS, OR COMBINATION UNITS EQUIPPED WITH STORAGE. NEW JERSEY STANDS TO GAIN OIL SAVINGS AS THESE METHODS ARE ALLOWED TO DEVELOP THROUGH PRODUCT AVAILABILITY, NEW CODES AND LAWS, AND ECONOMIC INCENTIVES.

PROFESSIONAL - found working for equipment companies, utilities, and government contractors developing both alternate energy units and their sales market:

ECONOMIST
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST
ARCHITECT

TECHNICAL - found working for equipment companies, utilities, and government contractors:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - found working for construction companies or small contractors installing energy equipment:

CARPENTER
CONSTRUCTION LABORER
PLUMBER
AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC

OPERATIONS ENGINEERING - may be found working for larger construction companies or energy contractors delivering equipment or operating lifts:

GENERAL EQUIPMENT OPERATOR
TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may share job time with other responsibilities at construction companies, government contractors, utilities, or energy contractors:

SECRETARY
FILE CLERK
COMPANY SALES REPRESENTATIVE
DISPATCHER
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

PLANNING

BEFORE THE EARLY 1970'S, ENERGY WAS AVAILABLE IN A FREE MARKET ECONOMY. THE FUTURE MAY SOON BRING A CHANGE TO ECONOMIC PLANNING IN BOTH USE AND SUPPLY. COMPANY ENERGY MANAGERS ARE NOW BEING HIRED TO CUT USE FOR ECONOMY. ENERGY AUDITORS ARE SURVEYING BOTH HOMES AND BUSINESSES TO MEASURE USE AND SUGGEST MEANS OF CONSERVATION. SOON THESE PROFESSIONALS MAY BE WORKING TO MEET GUIDELINES OR LIMITED SUPPLY. ECONOMIC PLANNERS ARE EVALUATING SUPPLY IN LIGHT OF NEW FOSSIL AND NUCLEAR ESTIMATES. THEIR SUGGESTIONS MAY INFLUENCE SUPPLY POLICY. NEW JERSEY WILL CONTINUE TO HAVE EMPLOYMENT IN A WIDE RANGE OF FIELDS FOR ENERGY PLANNERS.

PROFESSIONAL - found working for government agencies and as energy managers for companies and businesses:

ECONOMIST
CHEMICAL ENGINEER
MECHANICAL ENGINEER
ENGINEERING ANALYST
LAWYER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - little technical work is found in conservation planning.

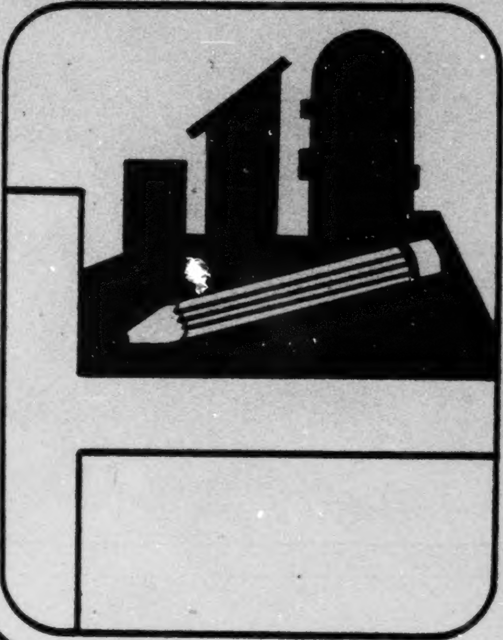
SKILLED TRADE, CRAFT, or LABOR - little trade work is found in conservation planning.

OPERATIONS ENGINEERING - little operations work is found in conservation planning.

MANAGERIAL or ADMINISTRATIVE - found working for government agencies and private energy management firms:

SECRETARY
TYPIST/STENOGRAPHER
BUDGET AND MANAGEMENT ACCOUNTANT
STATISTICAL CLERK
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR
SYSTEMS ANALYST

BUILDING DESIGN



DESIGN OF HOMES AND LARGE BUILDINGS WILL INCORPORATE ENERGY-SAVING PRINCIPLES TO REDUCE FUTURE ENERGY DEMAND. SUCH PRINCIPLES CAN BE BUILT INTO TRADITIONAL AS WELL AS CONTEMPORARY DESIGNS. PASSIVE USE OF SOLAR ENERGY FOR HEATING AND VENTILATION WILL LOWER ENERGY USE. BUILDING SHAPE AND ARRANGEMENT OF LIVING SPACE AFFECTS ENERGY USE. PLANNING THE USE OF MORE INSULATION AND CAREFUL CHOICE OF MATERIALS ARE IMPORTANT. THESE CONSIDERATIONS ARE RELATIVELY NEW TO ARCHITECTURE AND DESIGN PRINCIPLES ARE JUST BEING DISCOVERED OR REAPPLIED. THE HIGH POPULATION DENSITY IN NEW JERSEY DEMANDS THAT ATTENTION BE PAID TO ENERGY-EFFICIENT BUILDING DESIGN.

PROFESSIONAL - found working for architectural or engineering firms designing energy-efficient buildings:

CIVIL ENGINEER
ENGINEERING ANALYST
ARCHITECT

TECHNICAL - may share job time with other projects at architectural or engineering firms:

DRAFTER

SKILLED TRADE, CRAFT, or LABOR - little trade work is found in building desing

OPERATIONS ENGINEERING - little operations work is found in building design

MANAGERIAL or ADMINISTRATIVE - may share job time with other projects at architectural or engineering firms:

RECEPTIONIST
SECRETARY
FILE CLERK
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR
SUPERVISOR

RECYCLING

RECYCLING MATERIALS THAT ARE NOW CONSIDERED THROW-AWAY COULD GREATLY REDUCE INDUSTRY'S ENERGY DEMAND. THE ALUMINUM INDUSTRY, WHICH USES ABOUT 7% OF ALL ELECTRICAL ENERGY, CAN CUT USE BY A FACTOR OF TWENTY IF RECYCLING IS USED. RETURNABLE GLASS BOTTLES DO REQUIRE MORE EFFORT BUT CUT ENERGY COSTS TO ONE QUARTER OF THAT REQUIRED FOR THROW-AWAYS. RECYCLING NEWSPRINT COULD CUT ENERGY NEEDS IN HALF IN THE PAPER INDUSTRY. BUYING QUALITY ITEMS AND CAREFUL MAINTENANCE REDUCE THROW-AWAY WASTE. RECYCLING REQUIRES AN AWARE AND WILLING PUBLIC, INDUSTRY COOPERATION, AND PEOPLE TO MANAGE AND CARRY OUT RECYCLING ACTIVITIES. NEW JERSEY HAS MUCH TO GAIN IN ENERGY CONSERVATION AND WASTE REDUCTION THROUGH ORGANIZED RECYCLING.

PROFESSIONAL - found working for industry designing recycling programs or engineering recycling equipment; may work for government agencies promoting or managing recycling programs:

ECONOMIST
MECHANICAL ENGINEER
ENGINEER OF SYSTEM DEVELOPMENT
TRANSPORTATION ENGINEER
TEACHER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - limited work may be found in developing recycling equipment:

DRAFTER
ENGINEERING AND SCIENCE TECHNICIAN

SKILLED TRADE, CRAFT, or LABOR - limited work may be found fabricating recycling equipment:

ELECTRICIAN
MACHINIST
SHEET METAL WORKER
WELDER
INSPECTOR

OPERATIONS ENGINEERING - may be found operating recycling equipment or collection trucks:

- GENERAL EQUIPMENT OPERATOR
- TRUCKDRIVER

MANAGERIAL or ADMINISTRATIVE - may be found working for local governments; may share job time with other responsibilities at companies using recycling:

- SECRETARY
- BUDGET AND MANAGEMENT ACCOUNTANT
- FILE CLERK
- COMPANY SALES REPRESENTATIVE
- INDUSTRY OR GOVERNMENT ADMINISTRATOR
- SUPERVISOR

DEMAND REDUCTION

DEMAND REDUCTION CAN BE BROUGHT ABOUT THROUGH EITHER VOLUNTARY CONSERVATION OR ENFORCED RESTRICTION. THE U.S. IS NOW TRYING VOLUNTARY REDUCTION. THE SUCCESS OF THIS PROGRAM DEPENDS UPON A WELL-EDUCATED PUBLIC AND THE ECONOMIC BURDEN IMPOSED BY ENERGY USE. EDUCATION TAKES PLACE THROUGH MEDIA COMPAIGNS, COURSES IN SCHOOLS, NIGHT COURSES FOR ADULTS, AND BOOKS AND PAMPHLETS. IF THIS FAILS, MANDATORY RESTRICTION OF ENERGY USE, SUCH AS GAS RATIONING, MAY BE IMPOSED. LEGISLATORS WILL BE REQUIRED TO MAKE THE HARD DECISIONS ASSOCIATED WITH MANDATORY RESTRICTION. DEMAND REDUCTION IS A KEY PART OF THE NEW JERSEY ENERGY MASTER PLAN.

PROFESSIONAL - found working for government agencies or contractors and for schools and colleges teaching conservation:

ECONOMIST
LAWYER
TEACHER
TECHNICAL WRITER/ILLUSTRATOR

TECHNICAL - little technical work is found in demand reduction

SKILLED TRADE, CRAFT, or LABOR - little trade work is found in demand reduction

OPERATIONS ENGINEERING - little operations work is found in demand reduction

MANAGERIAL or ADMINISTRATIVE - may be found working for government agencies or contractors:

SECRETARY
TYPIST/STENOGRAPHER
STATISTICAL CLERK
ENERGY ANALYST
INDUSTRY OR GOVERNMENT ADMINISTRATOR

OCCUPATIONS

This handbook defines energy-related occupations as those occupations which, in either a direct or supportive role, are found in development, production, distribution, or conservation of energy. Energy-related occupations require a wide range of academic and vocational skills and are organized into professional, technical, skilled trade or craft, equipment operation, and managerial or administrative occupations.

Professional occupations generally include scientific and engineering occupations. Such jobs require extensive academic training and the ability to work well independently while under pressure. Most scientific work involves research while engineers apply their knowledge to design energy facilities and to locate and recover fuels. Architects, lawyers, and teachers are among the other professionals who may work on energy-related projects.

Technical occupations are important to the energy field today. Most energy-related activity involves complex mechanical and electronic equipment. The installation, use, and maintenance of such equipment demands skilled technicians. Such workers may learn their skills at colleges, junior colleges, or technical institutes.

Skilled trade workers are needed in energy fields for construction of energy facilities and fabrication of energy equipment. Such workers learn their trades at vocational-technical schools, technical institutes, apprenticeships, or on-the-job training. Building trades are involved in energy-related construction. Welders, machinists, and boilermakers are among the trade workers in equipment fabrication. Mechanics can find energy-related work as heating mechanics, engine mechanics, and in power equipment maintenance.

Operating engineers run the power equipment which allows us to meet our large scale energy demands. Mining, well drilling, oil refining, and power plant operation all require workers skilled at equipment operation. They learn these skills through apprenticeship programs or on-the-job training.

Finally, the organization and orderly operation of large and complex energy industries depend upon the activities of the managerial and administrative staff. Office and clerical workers manage paperwork and finances. Working along with them are a number of managers, supervisors, and administrators who oversee the activities of the business. The training for these workers is quite varied and is explained in detail in the following descriptions.

The following section on energy occupations consists of an occupations outline followed by descriptions of each occupation. The outline organizes all energy-related occupations into professional, technical, skilled trade or craft, operations engineering, and managerial or administrative areas. This outline serves to explain the organization of the energy occupations in the handbook and to provide a reference for further job investigations.

The outline is followed by articles each of which describes one of the occupational areas listed in the outline. Many of these articles are illustrated with actual job advertisements from newspapers and magazines to give you an idea of how such jobs might be advertised. This information is followed by addresses of organizations which may be contacted for further information about the occupation. Each description includes a list of job titles which may be considered part of that occupational area. These job titles include the nine-digit code number from the Dictionary of Occupational Titles (D.O.T.). The D.O.T. is a reference book commonly found in guidance offices and by using the nine-digit code you can quickly use the D.O.T. to look up a detailed description of the job title for additional information.

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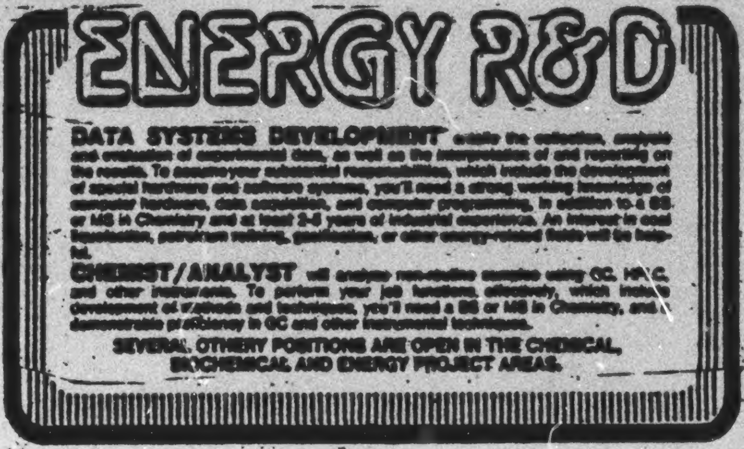
128 PROFESSIONAL

CHEMIST



ENERGY R&D

DATA SYSTEMS DEVELOPMENT

CHEMIST/ANALYST

SEVERAL OTHER POSITIONS ARE OPEN IN THE CHEMICAL, BIOCHEMICAL AND ENERGY PROJECT AREAS.

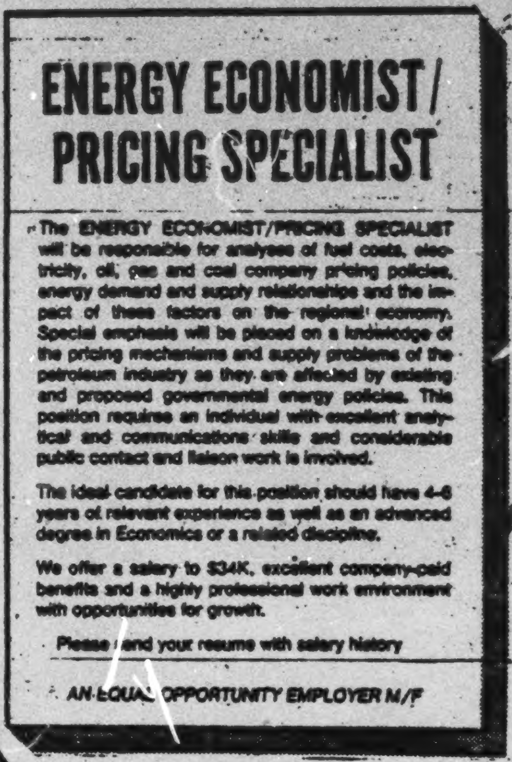
CHEMISTS ARE SCIENTISTS WORKING TOWARD A BETTER UNDERSTANDING OF THE WAY SUBSTANCES COMBINE AND INTERACT. MOST CHEMISTS WORK ON RESEARCH AND DEVELOPMENT PROJECTS, TRYING TO MAKE NEW AND USEFUL COMPOUNDS. PRIVATE INDUSTRIES, MOSTLY CHEMICAL MANUFACTURERS, EMPLOY MOST CHEMISTS, BUT COLLEGES AND GOVERNMENT TOGETHER EMPLOY ABOUT ONE THIRD OF ALL CHEMISTS. CHEMICAL RESEARCH IN ENERGY MAY INCLUDE MATERIALS DEVELOPMENT FOR INSULATORS, NEW FUELS, OR SOLAR ENERGY. LIGHTWEIGHT, DURABLE PLASTICS FOR PIPELINES AND TRANSPORT MUST BE DEVELOPED. ANALYTICAL CHEMISTS ARE NEEDED FOR ENVIRONMENTAL MONITORING AND PRODUCTION CONTROL. NEW JERSEY'S COMINATION OF RESEARCH AND INDUSTRIAL ACTIVITY GUARANTEES CONTINUED EMPLOYMENT FOR CHEMISTS IN ENERGY-RELATED JOBS.

American Chemical Society
1155 16th Street NW
Washington, D.C. 20036

Manufacturing Chemists Association
1825 Connecticut Avenue NW
Washington, D.C. 20009

BIOCHEMIST	041.061-026
CHEMIST	022.061-010
*CHEMIST, PHYSICAL	022.061-010
CHEMIST, POLLUTION CONTROL	022.061-010

ECONOMIST



ENERGY ECONOMIST/ PRICING SPECIALIST

The ENERGY ECONOMIST/PRICING SPECIALIST will be responsible for analyses of fuel costs, electricity, oil, gas and coal company pricing policies, energy demand and supply relationships and the impact of these factors on the regional economy. Special emphasis will be placed on a knowledge of the pricing mechanisms and supply problems of the petroleum industry as they are affected by existing and proposed governmental energy policies. This position requires an individual with excellent analytical and communications skills and considerable public contact and liaison work is involved.

The ideal candidate for this position should have 4-6 years of relevant experience as well as an advanced degree in Economics or a related discipline.

We offer a salary to $34K, excellent company-paid benefits and a highly professional work environment with opportunities for growth.

Please send your resume with salary history

AN EQUAL OPPORTUNITY EMPLOYER M/F

THE INCREASING COMPLEXITY OF THE ENERGY MARKET WILL DEMAND ACCURATE ECONOMIC AND BUSINESS ANALYSIS IN MOST INDUSTRIES. GOVERNMENT WILL REQUIRE ECONOMISTS TO ANALYZE ENERGY SUPPLY TRENDS, MARKET TRENDS, AND PRICING. FUEL COMPANIES WILL NEED ANALYSTS TO PREPARE PRICE POLICY BASED ON INCREASING CAPITAL INVESTMENT. POWER COMPANIES MUST ACCOUNT FOR FUEL AND EQUIPMENT COSTS ALONG WITH DEMAND FACTORS. FOR MOST MANUFACTURERS, ENERGY COSTS WILL BECOME A LARGER OVERHEAD FACTOR. EDUCATION BEGINS WITH A BACHELOR'S DEGREE IN BUSINESS OR ECONOMICS FOLLOWED BY A MASTER'S IN BUSINESS ADMINISRATION. FEW ECONOMISTS DEAL EXCLUSIVELY WITH ENERGY POLICY. NEW JERSEY EMPLOYMENT FOR ECONOMISTS WILL FOLLOW THE TRENDS COMMON IN THE GENERAL JOB PICTURE.

American Economic Association
1313 21st Avenue South
Nashville, Tennessee 37212

National Association of Business Economists
28349 Chagrin Blvd., Suite 201
Cleveland, Ohio 44122

*ECONOMIST 050.067-010

FORESTER/ SILVICULTURIST

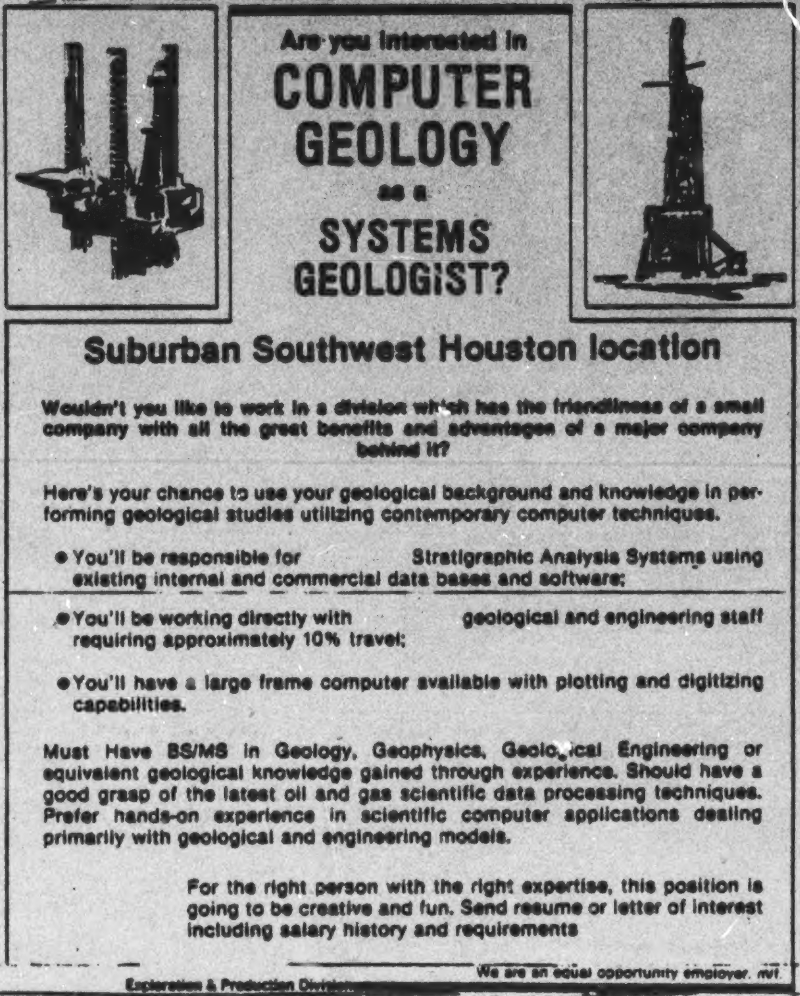
FORESTERS ARE PROFESSIONALS WHO MANAGE, DEVELOP, AND CONSERVE WOODLAND RESOURCES. SILVICULTURISTS ARE FORESTERS WHO SPECIFICALLY DEAL WITH GROWING TREES. BOTH MAY PLAY IMPORTANT ROLES IN THE DEVELOPMENT OF FORESTS AS AN ENERGY RESOURCE. FORESTERS WORKING FOR THE WOOD AND PAPER INDUSTRY ARE DEVELOPING TECHNIQUES FOR WOODLAND MANAGEMENT TO INCREASE THE WOOD HARVEST. SILVICULTURISTS ARE WORKING ON FAST-GROWING TREES THAT MAY BE USED IN FUTURE "ENERGY FORESTS." A BACHELOR'S DEGREE IN FORESTY IS REQUIRED WITH ADVANCED DEGREES PREFERRED FOR RESEARCH. ALTHOUGH NEW JERSEY'S DENSE POPULATION MAKES OPEN SPACE A VALUABLE RESOURCE, AS MANY AS 185,000 ACRES OF LAND MAY BE SUITABLE FOR BIOMASS FARMING.

Society of American Foresters
5400 Grosvenor Lane
Washington, D.C. 20014

American Forestry Association
1319 18th Street NW
Washington, D.C. 20036

FOREST ECOLOGIST	040.061-030
FOREST ENGINEER	005.167-018
FORESTER	040.061-034
FOREST SUPERVISOR	040.061-034
SILVICULTURIST	040.061-050

GEOLOGIST/ GEOPHYSICIST



Are you interested in

COMPUTER GEOLOGY

as a

SYSTEMS GEOLOGIST?

Suburban Southwest Houston location

Wouldn't you like to work in a division which has the friendliness of a small company with all the great benefits and advantages of a major company behind it?

Here's your chance to use your geological background and knowledge in performing geological studies utilizing contemporary computer techniques.

- You'll be responsible for Stratigraphic Analysis Systems using existing internal and commercial data bases and software;
- You'll be working directly with geological and engineering staff requiring approximately 10% travel;
- You'll have a large frame computer available with plotting and digitizing capabilities.

Must Have BS/MS in Geology, Geophysics, Geological Engineering or equivalent geological knowledge gained through experience. Should have a good grasp of the latest oil and gas scientific data processing techniques. Prefer hands-on experience in scientific computer applications dealing primarily with geological and engineering models.

For the right person with the right expertise, this position is going to be creative and fun. Send resume or letter of interest including salary history and requirements

We are an equal opportunity employer. m/f.

Exploration & Production Divi

WHILE GEOLOGISTS STUDY THE STRUCTURE AND COMPOSITION OF THE EARTH'S CRUST, GEOPHYSICISTS STUDY THE TOTAL STRUCTURE OF THE EARTH AS A PLANET. BOTH ARE CONSIDERED HERE BECAUSE THEY HAVE SIMILAR ROLES IN THE DISCOVERY OF FOSSIL FUEL RESOURCES. ALTHOUGH THEIR APPROACHES ARE DIFFERENT, BOTH GEOLOGISTS AND GEOPHYSICISTS FACE THE SAME PROBLEM. THEIR TASK IS TO LOCATE HIDDEN, ECONOMICALLY VALUABLE DEPOSITS OF ENERGY RESOURCES (COAL, OIL, AND GAS) USING ONLY INDIRECT EVIDENCE. THE CHALLENGE IS GROWING AS REMAINING DEPOSITS BECOME HARD TO FIND. A BACHELOR'S DEGREE IN GEOLOGY OR GEOPHYSICS IS NEEDED FOR ENTRY-LEVEL JOBS. MOST NEW JERSEY RESOURCE EXPLORATION IS IN OFFSHORE OIL AND GAS AND FEW GEOLOGISTS AND GEOPHYSICISTS WILL BE EMPLOYED IN NEW JERSEY.

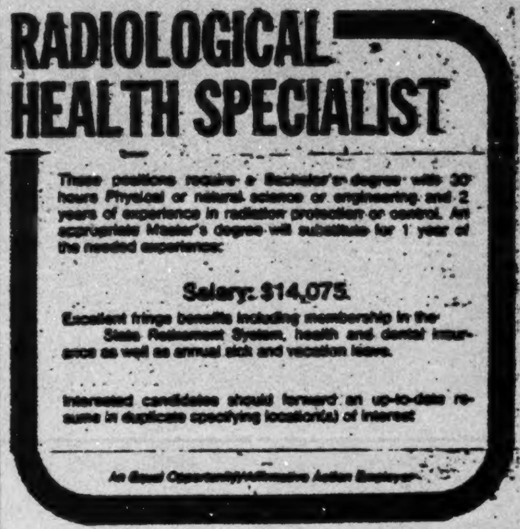
American Geological Institute
5205 Leesburg Pike
Church Falls, Virginia 22041

American Geophysical Union
1909 K. Street NW
Washington, D.C. 20006

Society of Exploration Geophysicists
P.O. Box 3098
Tulsa, Oklahoma 74101

*ENGINEERING GEOLOGIST	024.061-018
GEOLOGIST	024.061-018
GEOLOGIST, PETROLEUM	024.061-022
GEOPHYSICAL PROSPECTOR	024.061-026
GEOPHYSICIST	024.061-030

LIFE SCIENTIST



RADIOLOGICAL HEALTH SPECIALIST

These positions require a Bachelor's degree with 30 hours Physical or natural science or engineering and 2 years of experience in radiation protection or control. An appropriate Master's degree will substitute for 1 year of the needed experience.

Salary: $14,075

Excellent fringe benefits including membership in the State Retirement System, health and dental insurance as well as annual sick and vacation leave.

Interested candidates should forward an up-to-date resume in duplicate specifying location(s) of interest

An Equal Opportunity/Affirmative Action Employer

MOST EMPLOYMENT FOR LIFE SCIENTISTS (BOTANISTS, ZOOLOGISTS, MICROBIOLOGISTS, ECOLOGISTS, AND OTHERS) IS NOT ENERGY-RELATED, BUT THERE IS RESEARCH IN THE ENERGY FIELDS THAT DEMANDS THE KNOWLEDGE AND SKILLS OF LIFE SCIENTISTS. ENVIRONMENTAL IMPACT STATEMENTS FOR ENERGY FACILITIES SUCH AS POWER PLANTS AND REFINERIES REQUIRE BIOLOGICAL ASSESSMENT. RESEARCH MUST CONTINUE INTO BIO-MASS GROWTH AND BIO-FUELS PRODUCTION. SUCH RESEARCH INVOLVES ACCURATE MEASUREMENT, STATISTICAL ANALYSIS, AND ADVANCED EQUIPMENT. MOST RESEARCHERS HOLD A PH.D. DEGREE, BUT TECHNICAL POSITIONS MAY BE AVAILABLE FOR THOSE WITH A BACHELOR'S DEGREE. IMPACT RESEARCH, ENVIRONMENTAL RESEARCH, AND BIOFUELS DEVELOPMENT SHOULD CONTINUE TO PROVIDE EMPLOYMENT IN NEW JERSEY.

American Institute of Biological Sciences
1401 Wilson Blvd.
Arlington, Virginia 22209

American Society of Horticultural Science,
National Center for American Horticulture
Mt. Vernon, Virginia 22121

American Physiological Society, Education Office
9650 Rockville Pike
Bethesda, Maryland 20014

AQUATIC BIOLOGIST	041.061-022
BIOLOGIST	041.061-030
BOTANIST	[illegible]41.061-038
*INDUSTRIAL HYGIENIST	[illegible]79.161.010
MARINE BIOLOGIST	041.061-022
LIMNOLOGIST	041.061-022
ZOOLOGIST	041.061-090

MATHEMATICIAN/ STATISTICIAN

PEOPLE WHO WISH TO USE THEIR MATH ABILITY IN ENERGY-RELATED FIELDS SHOULD STUDY APPLIED MATHEMATICS. SUCH APPLIED MATH MAY BE USED TO ASSIST ENGINEERS, PLANNERS, OR DESIGNERS TO SOLVE COMPLEX PROBLEMS, USUALLY WITH THE AID OF A COMPUTER. MATHEMATICIANS THAT APPLY THEIR SKILLS TO ANALYZE A LARGE NUMBER OF ACTORS ARE CALLED STATISTICIANS. MOST STATISTICIANS INTERESTED IN ENERGY-RELATED ANALYSIS WORK FOR PUBLIC UTILITIES, WHILE SOME WORK FOR GOVERNMENT. USUALLY MATHEMATICIANS REQUIRE A BACHELOR'S DEGREE FOR JOB ENTRY. ADVANCED DEGREES ARE GENERALLY REQUIRED FOR RESEARCH POSITIONS. ENGINEERING, PHYSICS, OR BUSINESS EXPERIENCE IS HELPFUL FOR POSITIONS IN THOSE AREA. NEW JERSEY, WITH ITS METROPOLITAN SETTING, WILL CONTINUE TO BE AN ACTIVE JOB CENTER FOR MATHEMATICIANS.

Society for Industrial and Applied Mathematics
33 S. 17th Street
Philadelphia, Pennsylvania 19103

American Statistical Associaton
806 15th Street NW
Washington, D.C. 20005

MATHEMATICAL TECHNICIAN	020.162-010
MATHEMATICIAN	020.067-014
STATISTICIAN, APPLIED	020.167-026
STATISTICIAN, ENGINEERING AND PHYSICAL SCIENCE	020.167-026
STATISTICIAN, MATHEMATICAL	020.067-022

METALLURGIST

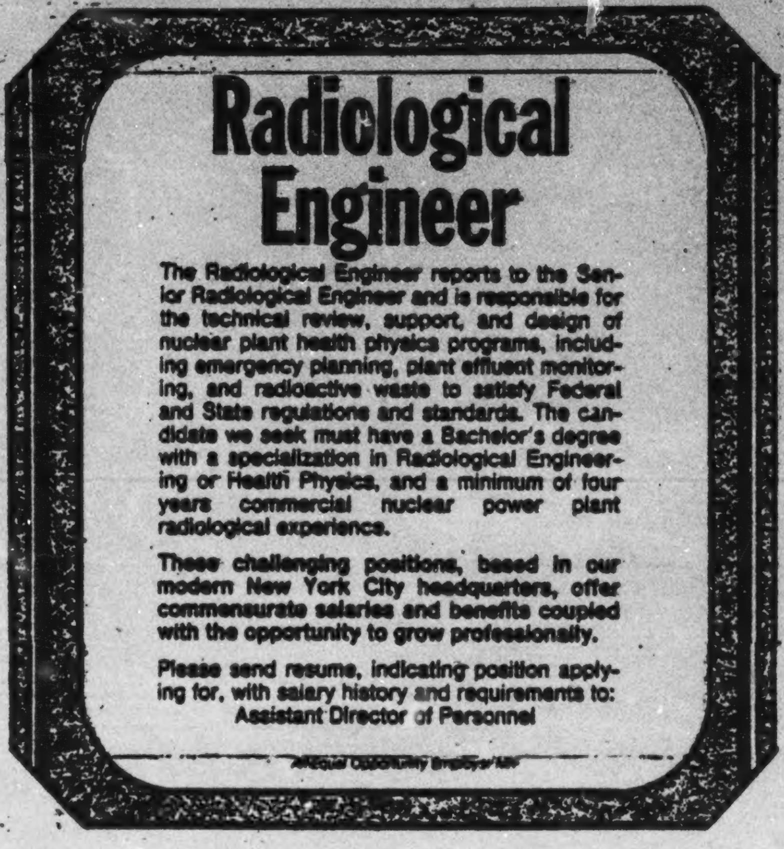
AS SUPPLIES OF FOSSIL FUELS DWINDLE, NEW FUELS AND ENERGY PRODUCTION METHODS MUST BE DISCOVERED AND DEVELOPED. OFTEN, NEW IDEAS REQUIRE MACHINES THAT CAN WITHSTAND SEVERE CONDITIONS. EXTREME HEAT OR COLD, RAPID TEMPERATURE CHANGES, HIGH SPEED, AND RADIATION PUT FLAW-PRODUCING STRAIN ON METAL PARTS. METALS, ALLOYS, AND COATINGS MUST BE DEVELOPED TO ASSURE SAFETY AND RELIABILITY IN NEWLY-DEVELOPED MACHINES. METALLURGISTS PERFORM EXPERIMENTS TO DETERMINE THE PROPERTIES OF NEW METALS AND THE PROCESSES REQUIRED TO IMPROVE THEIR CHARACTERISTICS. AN ADVANCED DEGREE IS GENERALLY REQUIRED FOR METALLURGICAL RESEARCH. NEW JERSEY'S PAST IN THE MANUFACTURE OF ENERGY-RELATED EQUIPMENT SHOULD ASSURE CONTINUED EMPLOYMENT FOR METALLURGISTS.

The American Institute of Mining, Metallurgical,
and Petroleum Engineers
345 East 47th Street
New York, New York 10017

American Society for Metals
Metals Park, Ohio 44073

METALLOGRAPHER	011.061-014
METALLURGIST, PHYSICAL	011.061-022

PHYSICIST



Radiological Engineer

The Radiological Engineer reports to the Senior Radiological Engineer and is responsible for the technical review, support, and design of nuclear plant health physics programs, including emergency planning, plant effluent monitoring, and radioactive waste to satisfy Federal and State regulations and standards. The candidate we seek must have a Bachelor's degree with a specialization in Radiological Engineering or Health Physics, and a minimum of four years commercial nuclear power plant radiological experience.

These challenging positions, based in our modern New York City headquarters, offer commensurate salaries and benefits coupled with the opportunity to grow professionally.

Please send resume, indicating position applying for, with salary history and requirements to:
Assistant Director of Personnel

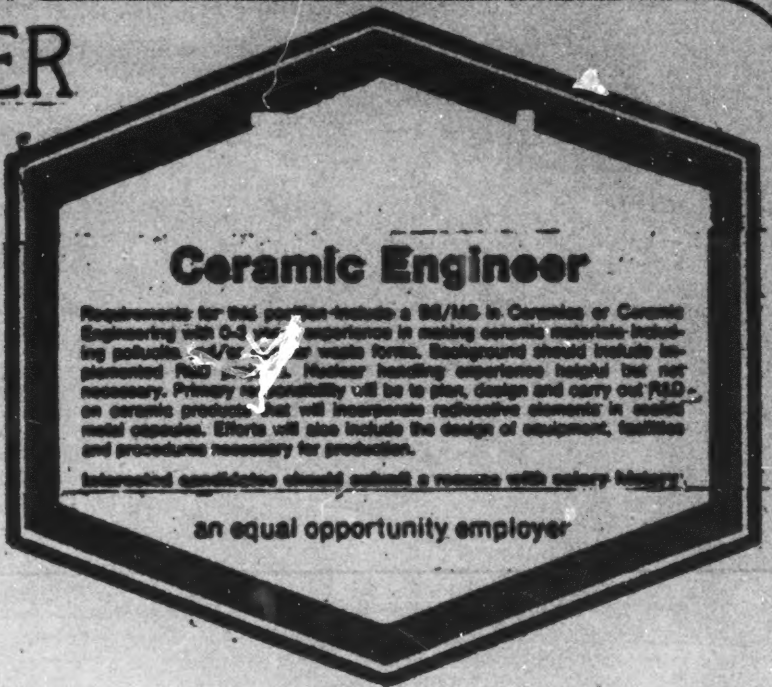
An Equal Opportunity Employer M/F

PHYSICISTS ARE SCIENTISTS WHO INVESTIGATE THE PHYSICAL BEHAVIOR OF MATTER, FOR EXAMPLE, EFFECTS OF HEAT, LIGHT, MOTION, NUCLEAR BEHAVIOR, FLUIDS, AND ELECTRIC FORCE. SUCH PHYSICAL BEHAVIOR IS IMPORTANT IN ENERGY RESEARCH. DEVELOPMENT OF SOLAR ENERGY, NUCLEAR ENERGY, ENVIRONMENTAL CONTROLS, NEW FUELS, AND NEW ENGINES DEPEND UPON UNDERSTANDING PHYSICAL BEHAVIOR. HALF OF ALL PHYSICISTS WORK AT COLLEGES OR UNIVERSITIES, ONE THIRD WORK FOR PRIVATE INDUSTRY, AND THE REMAINDER WORK FOR GOVERNMENT AGENCIES. EDUCATION BEGINS WITH A BACHELOR'S DEGREE IN PHYSICS FOLLOWED BY ADVANCED DEGREES IN SPECIALIZED AREAS. NEW JERSEY'S RESEARCH INDUSTRY COUPLED WITH THE CONTINUING NEED FOR ENERGY RESEARCH SHOULD ASSURE CONTINUED EMPLOYMENT FOR PHYSICISTS IN NEW JERSEY.

American Institute of Physics
335 East 45th Street
New York, New York 10017

PHYSICIST	023.061-014
PHYSICIST, CRYOGENIC	023.061-014
PHYSICIST, ELECTRICITY AND MAGNETISM	023.061-014
PHYSICIST, NUCLEAR	023.061-014
PHYSICIST, PLASMA	023.061-014
* HEALTH PHYSICIST	079.021-010

CERAMIC ENGINEER



Ceramic Engineer

Requirements for this position include a BS/MS in Ceramics or Ceramic Engineering with 0-3 [illegible] experience in making ceramic materials including pollucite [illegible] waste forms. Background should include implemented R&D [illegible]. Nuclear handling experience helpful but not necessary. Primary [illegible] will be to plan, design and carry out R&D on ceramic products [illegible] will incorporate radioactive elements in sealed metal capsules. Efforts will also include the design of equipment, facilities and procedures necessary for production.

Interested applicants should submit a resume with salary history.

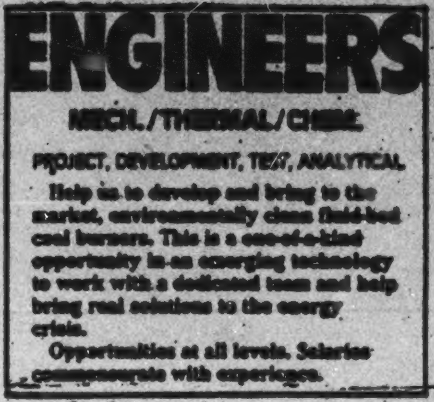
an equal opportunity employer

IN EVERYDAY LIFE, CERAMIC ITEMS MEAN POTTERY. IN FACT, THE WORD CERAMIC APPLIES TO NON-METALLIC, INORGANIC MATERIALS WHICH ARE MADE AT HIGH TEMPERATURES. SUCH MATERIALS INCLUDE RESISTORS, INSULATORS, FURNACE BRICK, ATOMIC FUEL ELEMENTS, AND OTHER HEAT-RESISTANT, NON-CONDUCTING PRODUCTS NEEDED FOR THE ENERGY INDUSTRY. CERAMIC ENGINEERS WORK TO CREATE SUCH PRODUCTS, CHOOSING THE MATERIALS AND FIRING PROCESS TO MEET SPECIFIC REQUIREMENTS. CERMAIC ENGINEERS ARE ALSO USED IN RESEARCH EFFORTS SUCH AS THOSE TO CREATE CERAMICS FOR NEW HIGH TEMPERATURE GENERATORS OR NUCLEAR WASTE DISPOSAL. A BACHELOR'S DEGREE IS REQUIRED FOR ENTRY-LEVEL POSITIONS AND AN ADVANCED DEGREE IS GENERALLY NEEDED FOR RESEARCH. THERE ARE, AT PRESENT, FEW POSITIONS IN ENERGY-RELATED CERAMIC ENGINEERING IN NEW JERSEY.

American Ceramic Society
65 Ceramic Drive
Columbus, Ohio 43214

CERAMIC DESIGN ENGINEER	006.061-010
CERAMIC ENGINEER	006.061-014
*CERAMIC RESEARCH ENGINEER	006.061-018
CERAMICS TEST ENGINEER	006.061-022
SALES ENGINEER, CERAMIC PRODUCTS	006.151-010

CHEMICAL ENGINEER



ENGINEERS

MECH./THERMAL/CHEM.

PROJECT, DEVELOPMENT, TEST, ANALYTICAL

Help us to develop and bring to the market, environmentally clean fluid-bed coal burners. This is a one-of-a-kind opportunity in an emerging technology to work with a dedicated team and help bring real solutions to the energy crisis.

Opportunities at all levels. Salaries commensurate with experience.

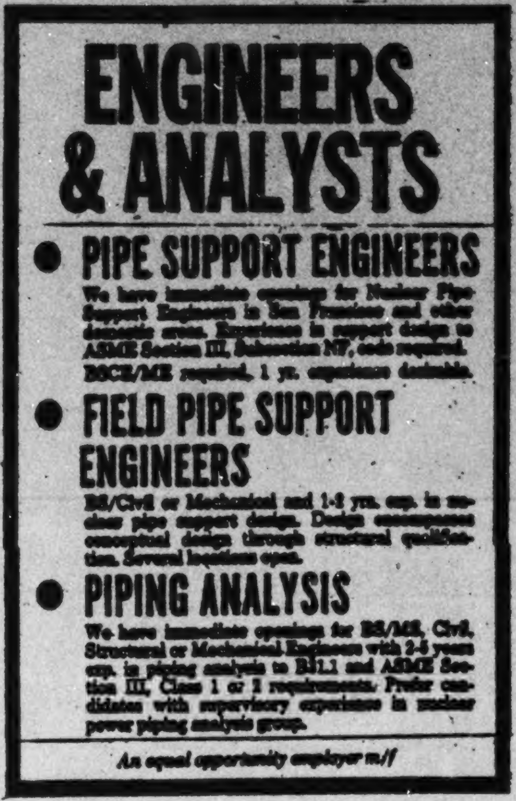
CHEMICAL ENGINEERS ARE INVOLVED IN DESIGNING THE METHODS AND FACILITIES USED IN THE PRODUCTION OF CHEMICALS AND CHEMICAL PRODUCTS. ALTHOUGH MOST CHEMICAL ENGINEERING IS NOT RELATED DIRECTLY TO ENERGY CONCERNS, SOME CHEMICAL ENGINEERS WORK WITH COAL AND COAL PRODUCTS, GAS, NUCLEAR ENERGY, AND PETROLEUM REFINING. RESEARCH PROJECTS IN ALL THESE AREAS HAVE BEEN ESTABLISHED AS WELL AS IN SOLAR, GEOTHERMAL, AND OTHER ALTERNATIVE TECHNOLOGIES. ALTHOUGH A BACHELOR'S DEGREE IS ALL THAT IS REQUIRED FOR ENTRY-LEVEL CHEMICAL ENGINEERS, ADVANCED DEGREES ARE USUALLY REQUIRED FOR RESEARCH POSITIONS. NEW JERSEY'S LARGE PETROCHEMICAL INDUSTRY AS WELL AS ITS RESEARCH INDUSTRY SHOULD PROVIDE PROFESSIONAL OPPORTUNITIES FOR CHEMICAL ENGINEERS.

American Institute of Chemical Engineers
345 E. 47th Street
New York, New York 10017

Manufacturing Chemists Association
1825 Connecticut Avenue NW
Washington, D.C. 20009

CHEMICAL DESIGN ENGINEER, PROCESS	008.061-014
*CHEMICAL ENGINEER	008.061-018
UTILIZATION ENGINEER	007.061-034

CIVIL ENGINEER



ENGINEERS & ANALYSTS

- **PIPE SUPPORT ENGINEERS**
  We have immediate openings for Nuclear Pipe Support Engineers in San Francisco and other domestic areas. Experience in support design to ASME Section III, Subsection NF, code required. BSCE/ME required. 1 yr. experience desirable.
- **FIELD PIPE SUPPORT ENGINEERS**
  BS/Civil or Mechanical and 1-2 yrs. exp. in nuclear pipe support design. Design encompasses conceptual design through structural qualification. Several locations open.
- **PIPING ANALYSIS**
  We have immediate openings for BS/MS, Civil, Structural or Mechanical Engineers with 2-5 years exp. in piping analysis to B31.1 and ASME Section III, Class 1 or 2 requirements. Prefer candidates with supervisory experience in nuclear power piping analysis group.

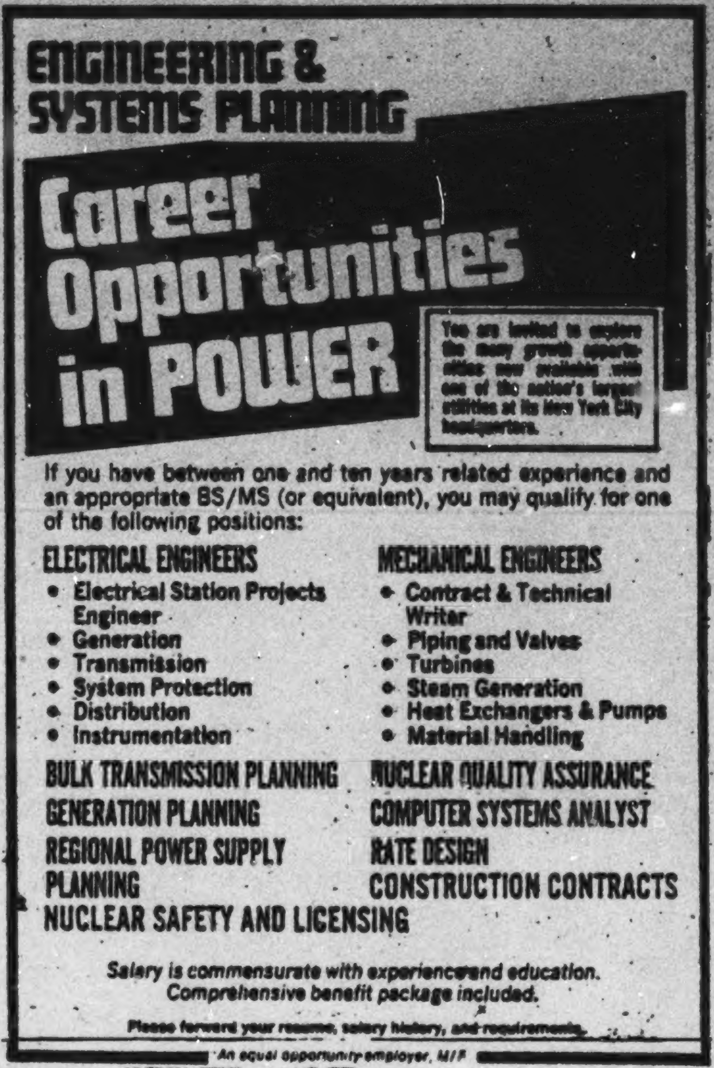
An equal opportunity employer m/f

CIVIL ENGINEERS DESIGN AND SUPERVISE THE CONSTRUCTION OF LARGE, PUBLIC PROJECTS SUCH AS ROADS, BRIDGES, DAMS, AND WATER AND SEWER SYSTEMS. SOME TYPES OF CIVIL ENGINEERING ACTIVITIES MAY BE CONSIDERED ENERGY-RELATED. DESIGN OF POWER PLANTS, REFINERIES, AND ELECTRICAL TRANSMISSION FACILITIES IS DONE BY CIVIL ENGINEERS. DESIGN OF NEW ROADS MAY LINK SAFETY AND APPEARANCE WITH NEW MATERIALS AND PLANS FOR ENERGY EFFICIENCY. AS NEW JERSEY CONTINUES TO BUILD FOR THE ENERGY REQUIREMENTS OF THE NEXT CENTURY, CIVIL ENGINEERS WITH GOOD SKILLS AND IMAGINATIVE IDEAS WILL BE NEEDED.

American Society of Civil Engineers
345 E. 47th Street
New York, New York 10017

*CIVIL ENGINEER	005.061-014
FOREST ENGINEER	005.167-018
MARINE ENGINEER	014.061-014
STRUCTURAL ENGINEER	005.061-034

ELECTRICAL ENGINEER



ENGINEERING & SYSTEMS PLANNING

Career Opportunities in POWER

You are invited to explore the many growth opportunities now available with one of the nation's largest utilities at its New York City headquarters.

If you have between one and ten years related experience and an appropriate BS/MS (or equivalent), you may qualify for one of the following positions:

ELECTRICAL ENGINEERS
- Electrical Station Projects Engineer
- Generation
- Transmission
- System Protection
- Distribution
- Instrumentation

MECHANICAL ENGINEERS
- Contract & Technical Writer
- Piping and Valves
- Turbines
- Steam Generation
- Heat Exchangers & Pumps
- Material Handling

BULK TRANSMISSION PLANNING
GENERATION PLANNING
REGIONAL POWER SUPPLY PLANNING
NUCLEAR SAFETY AND LICENSING
NUCLEAR QUALITY ASSURANCE
COMPUTER SYSTEMS ANALYST
RATE DESIGN
CONSTRUCTION CONTRACTS

Salary is commensurate with experience and education.
Comprehensive benefit package included.

Please forward your resume, salary history, and requirements.

An equal opportunity employer, M/F

ELECTRICAL ENGINEERS DESIGN AND DEVELOP BOTH ELECTRICAL AND ELECTRONIC DEVICES. ELECTRONIC DEVICES USED IN THE ENERGY FIELD INCLUDE COMPUTERS USED FOR CONTROL OF REFINERIES OR POWER DISTRIBUTION, CONTROLLERS FOR STEAM PLANTS, AND OTHER PACKAGED EQUIPMENT. ELECTRICAL DEVICES INCLUDE POWER-GENERATING EQUIPMENT SUCH AS GENERATORS, TRANSFORMERS, SWITCHES, AND CIRCUIT BREAKERS. MOST ENERGY-RELATED EMPLOYMENT FOR ELECTRICAL ENGINEERS IS IN POWER GENERATION AND DISTRIBUTION. A BACHELOR'S DEGREE IS REQUIRED FOR JOB ENTRY. ADVANCED DEGREES ARE REQUIRED FOR RESEARCH POSITIONS. NEW JERSEY EMPLOYMENT OPPORTUNITIES FOR POWER ENGINEERS SHOULD FOLLOW OVERALL ENERGY PATTERNS FOR THE NEAR FUTURE.

Institute of Electrical and Electronic Engineers/United
States Activities Board
2029 K. Street NW
Washington, D.C. 20006

DISTRIBUTION - FIELD ENGINEER	003.167-014
*ELECTRICAL ENGINEER	003.061-010
ELECTRICAL ENGINEER, POWER SYSTEM	003.167-018
ELECTRICAL - DESIGN ENGINEER	003.061-018
ELECTRICAL - PROSPECTING ENGINEER	003.061-022
ELECTRICAL - RESEARCH ENGINEER	003.061-026
ELECTRICAL TEST ENGINEER	003.061-014
ELECTRONICS ENGINEER	003.061-030
ILLUMINATING ENGINEER	003.061-046
INDUCTION - COORDINATION POWER ENGINEER	003.167-038
*POWER - DISTRIBUTION ENGINEER	003.167-046
*POWER - TRANSMISSION ENGINEER	003.167-050
*PROTECTION ENGINEER	003.167-054
SALES ENGINEER, ELECTRICAL PRODUCTS	003.151-010

MECHANICAL ENGINEER

POWER PLANT MECHANICAL ENGINEER

Major university co-generation power plant in need of responsible engineer with B.S.M.E. or equivalent and a minimum of three years steam power plant maintenance and/or operation experience involving high years steam power plant maintenance and/or operation experience involving high pressure P.C. boilers, steam turbine generators and associated auxilliary equipment. Duties will include outage planning. P.M. program, materials procurement; coordination of water treatment program, involvement with environmental regulations and control programs including two baghouses currently under construction and other specific generating station projects associated with improving reliability capability and efficiency of system. Supervisory experience and knowledge of construction planning also desireable. E.O.E.

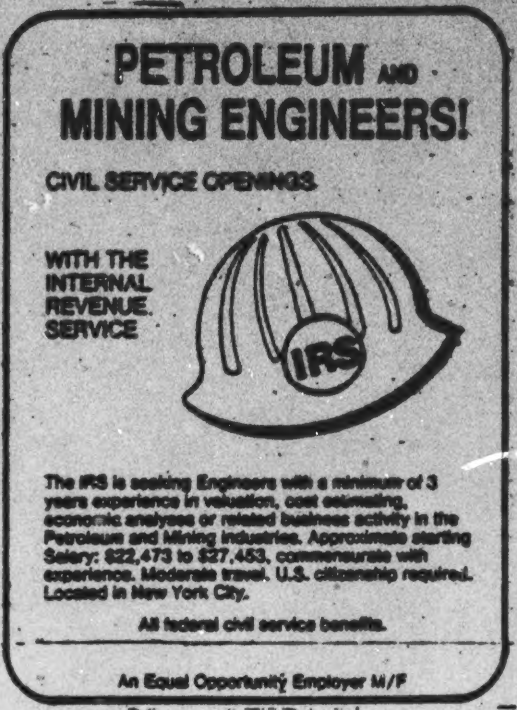
Salary Range: $17,530—$24,540
Refer to Position No. A8205

THE WORK OF MECHANICAL ENGINEERS IS AT THE HEART OF ENERGY-RELATED INDUSTRIES. THEIR WORK DEALS WITH THE PRODUCTION, TRANSMISSION, AND USE OF POWER THROUGH MACHINE DESIGN. POWER-PRODUCING MACHINES SUCH AS PISTON ENGINES, STEAM TURBINES, AND JET ENGINES CHANGE FUEL ENERGY TO MECHANICAL ENERGY. SOME EQUIPMENT USES POWER FOR HEATING AND COOLING. ALL THESE MACHINES MUST BE DESIGNED AND DEVELOPED TO OPERATE ECONOMICALLY, RELIABLY, CLEANLY, AND SAFELY. MECHANICAL ENGINEERS ASSURE THIS TYPE OF PERFORMANCE THROUGH CAREFUL DESIGN AND TESTING. A BACHELOR'S DEGREE IN MECHANICAL ENGINEERING IS REQUIRED TO BEGIN WORK AS A MECHANICAL ENGINEER. CONTINUED RESEARCH INTO THE DEVELOPMENT OF MORE EFFICIENT ENGINES AND MACHINES SHOULD INSURE CONTINUED EMPLOYMENT FOR MECHANICAL ENGINEERS IN NEW JERSEY.

The American Society of Mechanical
Engineers
345 E. 47th Street
New York, New York 10017

DESIGN ENGINEER, MARINE EQUIPMENT	014.061-010
DESIGN ENGINEER, NUCLEAR EQUIPMENT	015.061-010
MARINE ENGINEER	014.061-014
*MECHANICAL ENGINEER	007.061-014
POLLUTION-CONTROL ENGINEER	019.081-018
RESEARCH ENGINEER, MARINE EQUIPMENT	014.061-018
RESEARCH ENGINEER, MINING-AND-OIL-WELL EQUIPMENT	010.061-022
SALES ENGINEER, MECHANICAL EQUIPMENT	007.151-010

MINING ENGINEER



PETROLEUM AND MINING ENGINEERS!

CIVIL SERVICE OPENINGS

WITH THE INTERNAL REVENUE SERVICE

The IRS is seeking Engineers with a minimum of 3 years experience in valuation, cost estimating, economic analyses or related business activity in the Petroleum and Mining industries. Approximate starting Salary: $22,473 to $27,453, commensurate with experience. Moderate travel. U.S. citizenship required. Located in New York City.

All federal civil service benefits.

An Equal Opportunity Employer M/F

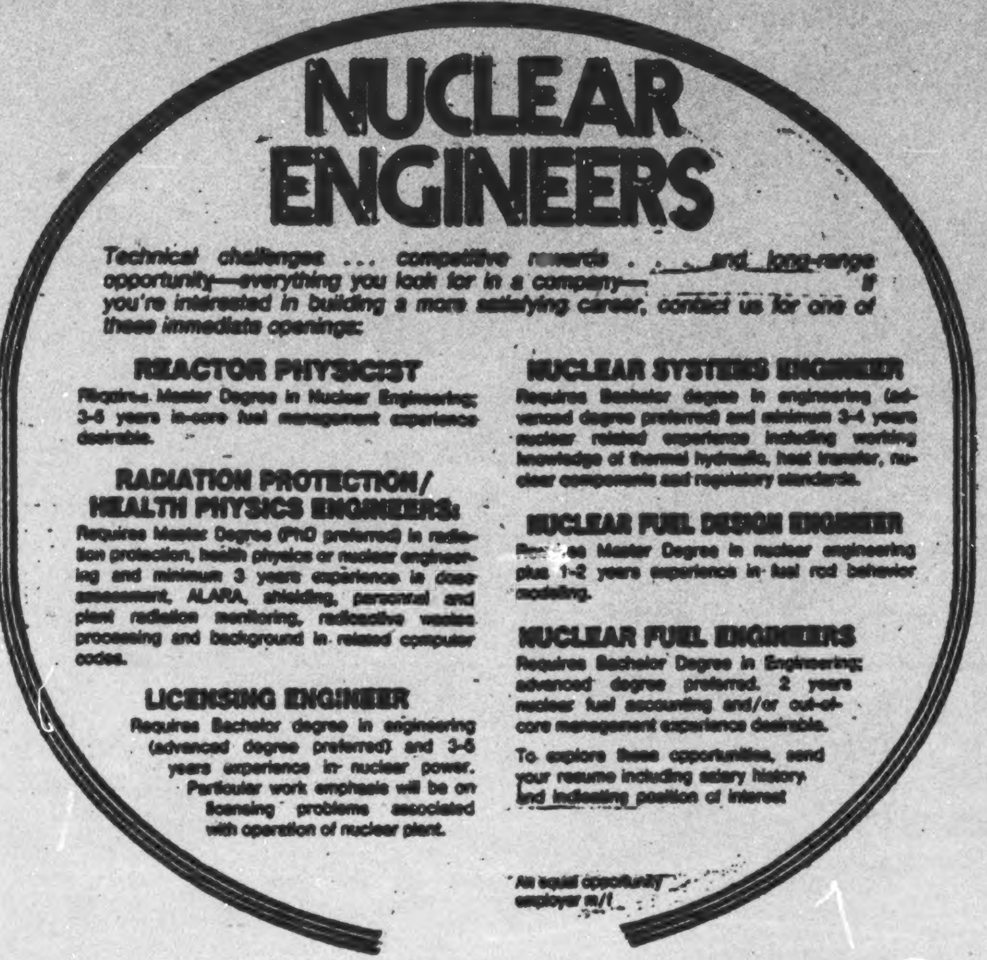
MINING ENGINEERS WORK WITH MINING GEOLOGISTS TO LOCATE NEW ORE DEPOSITS, YET THEIR REAL WORK COMES LATER. GETTING THE ORE OUT OF THE GROUND AND DELIVERING IT TO THE PREPARATION PLANT IS A MINING ENGINEER'S MAIN JOB. IN ADDITION, TODAY'S MINING INVOLVES SAFETY, POLLUTION CONTROL, MANAGEMENT, AND RESEARCH ACTIVITIES. ALL THESE FACTORS MUST BE CONSIDERED BY THE MINING ENGINEER WHEN DESIGNING THE MINE. ENERGY-RELATED MINING IS MOSTLY COAL MINING, BOTH UNDERGROUND AND SURFACE. BOTH TYPES PROVIDE THEIR OWN UNIQUE CHALLENGE TO THE ENGINEER. A BACHELOR'S DEGREE IN MINING ENGINEERING IS REQUIRED, BUT JOB COMPETITION IS CAUSING MANY ENGINEERS TO SEEK MASTER'S DEGREES. THERE IS NO MAJOR COAL MINING ACTIVITY IN NEW JERSEY.

The Society of Mining Engineers
of the American Institute of
Mining, Metallurgical, and
Petroleum Engineers
540 Arapeen Dr.-Research Park
Salt Lake City, Utah 84108

United Mine Workers of America
900 15th Street NW
Washington, D.C. 20005

*MINING ENGINEER	010.061-014
SALES ENGINEER, MINING-AND-OIL WELL EQUIPMENT AND SERVICES	010.151-010

NUCLEAR ENGINEER



NUCLEAR ENGINEERS

Technical challenges ... competitive rewards . . . and long-range opportunity—everything you look for in a company— If you're interested in building a more satisfying career, contact us for one of these immediate openings:

REACTOR PHYSICIST

Requires Master Degree in Nuclear Engineering; 3-5 years in-core fuel management experience desirable.

RADIATION PROTECTION/ HEALTH PHYSICS ENGINEERS:

Requires Master Degree (PhD preferred) in radiation protection, health physics or nuclear engineering and minimum 3 years experience in dose assessment, ALARA, shielding, personnel and plant radiation monitoring, radioactive waste processing and background in related computer codes.

LICENSING ENGINEER

Requires Bachelor degree in engineering (advanced degree preferred) and 3-5 years experience in nuclear power. Particular work emphasis will be on licensing problems associated with operation of nuclear plant.

NUCLEAR SYSTEMS ENGINEER

Requires Bachelor degree in engineering (advanced degree preferred) and minimum 3-4 years nuclear related experience including working knowledge of thermal hydraulic, heat transfer, nuclear components and regulatory standards.

NUCLEAR FUEL DESIGN ENGINEER

Requires Master Degree in nuclear engineering plus 1-2 years experience in fuel rod behavior modeling.

NUCLEAR FUEL ENGINEERS

Requires Bachelor Degree in Engineering; advanced degree preferred. 2 years nuclear fuel accounting and/or out-of-core management experience desirable.

To explore these opportunities, send your resume including salary history and indicating position of interest

An equal opportunity employer m/f

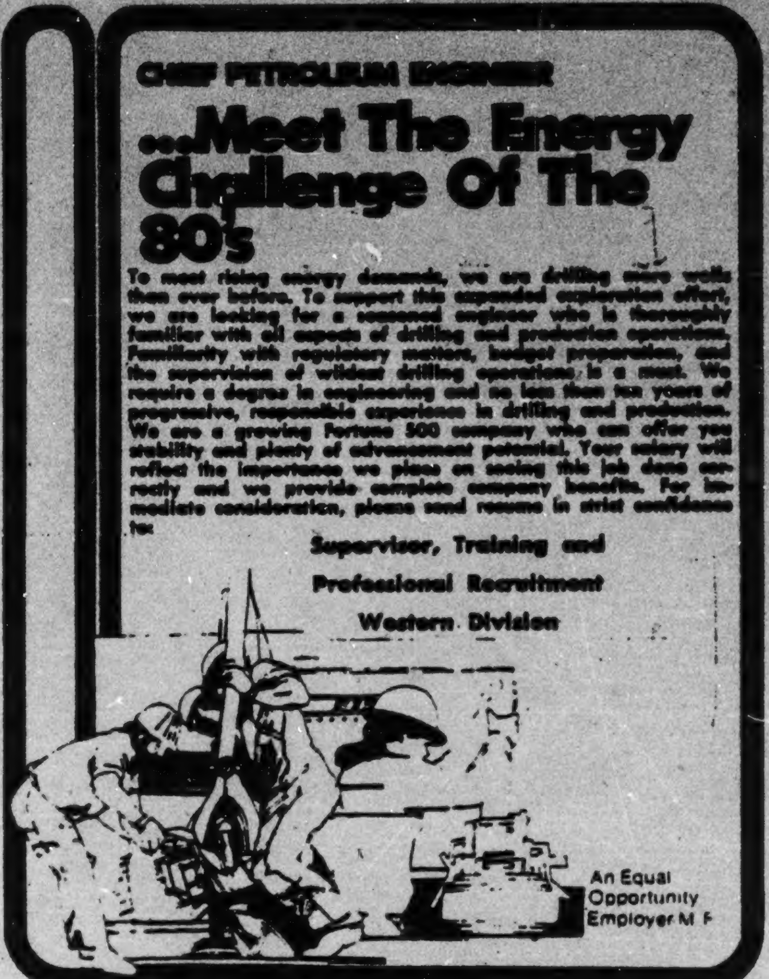
NUCLEAR ENERGY IS USED TO GENERATE 12% OF OUR ELECTRICAL POWER. RECENT QUESTIONS RAISED ABOUT THE SAFETY OF NUCLEAR POWER AND THE DISPOSAL OF NUCLEAR WASTE CAN ONLY BE ANSWERED BY CONTINUED RESEARCH AND ENGINEERING EFFORT. NUCLEAR ENGINEERS PLAY A PART IN FUEL FABRICATION, NUCLEAR PLANT DESIGN, NUCLEAR PLANT OPERATION, WASTE DISPOSAL, AND REACTOR RESEARCH. EDUCATION BEGINS WITH A BACHELOR'S DEGREE IN NUCLEAR ENGINEERING AND MAY BE FOLLOWED BY CONTINUED INDUSTRY-SPONSORED EDUCATION OR ADVANCED DEGREES. NEW JERSEY'S TWO OPERATING REACTORS, ITS COMMITMENT TO BUILD FOUR MORE, AND FUSION RESEARCH EFFORT SHOULD PROVIDE EMPLOYMENT OPPORTUNITIES TO WELL-TRAINED CANDIDATES.

American Nuclear Society
244 East Ogden Avenue
Hinsdale, Illinois 60521

Engineers' Council for Professional Development
345 East 47th Street
New York, New York 10017

DESIGN ENGINEER, NUCLEAR EQUIPMENT	015.061-010
*NUCLEAR ENGINEER	015.061-014
RESEARCH ENGINEER, NUCLEAR EQUIPMENT	015.061-018
SALES ENGINEER, NUCLEAR EQUIPMENT	015.151-010

PETROLEUM ENGINEER



CHIEF PETROLEUM ENGINEER

...Meet The Energy Challenge Of The 80's

To meet rising energy demands, we are drilling more wells than ever before. To support this expanded exploration effort, we are looking for a seasoned engineer who is thoroughly familiar with all aspects of drilling and production operations. Familiarity with regulatory matters, budget preparation, and the supervision of wildcat drilling operations is a must. We require a degree in engineering and no less than ten years of progressive, responsible experience in drilling and production. We are a growing Fortune 500 company who can offer you stability and plenty of advancement potential. Your salary will reflect the importance we place on seeing this job done correctly and we provide complete company benefits. For immediate consideration, please send resume in strict confidence to:

Supervisor, Training and
Professional Recruitment
Western Division

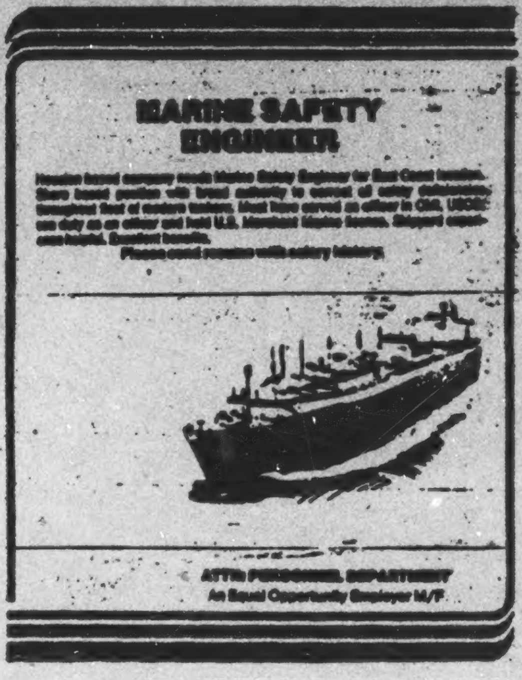
An Equal
Opportunity
Employer M F

AS EASY-TO-GET OIL BECOMES MORE LIMITED IN THE U.S., PETROLEUM ENGINEERS WILL PLAY A MORE IMPORTANT ROLE IN MAINTAINING OUR U.S. OIL AND GAS SUPPLY. PETROLEUM ENGINEERS ARE CONCERNED WITH THE DEVELOPMENT AND RECOVERY OF PETROCHEMICALS. DEVELOPMENT INVOLVES DRILLING NEW WELLS, BOTH ON-SHORE AND OFF-SHORE. SUCH WELLS WILL REQUIRE INCREASING ENGINEERING SKILLS AND A NECESSITY FOR GREATER DRILLING ACCURACY AND MORE DEPTH. ENHANCING OIL RECOVERY FROM EXISTING WELLS MAY PROVIDE OUR GREATEST PETROLEUM RESERVES. EDUCATION STARTS WITH A BACHELOR'S DEGREE. ON-THE-JOB EDUCATION AND PROFESSIONAL DEVELOPMENT COURSES ARE IMPORTANT AFTER EMPLOYMENT. NEW JERSEY MAY HAVE LIMITED PETROLEUM ENGINEERING OPPORTUNITIES AS OFF-SHORE OIL IS DEVELOPED.

Society of Petroleum Engineers of AIME
6200 North Central Expressway
Dallas, Texas 75206

CHIEF ENGINEER	010.167-010
CHIEF ENGINEER, RESEARCH	010.161-010
DRILLING ENGINEER	010.061-018
*PETROLEUM ENGINEER	010.061-018
PRODUCTION ENGINEER	010.061-018
RESERVOIR ENGINEER	010.061-018
SALES ENGINEER, MINING-AND-OIL WELL EQUIPMENT AND SERVICES	010.151-010

OTHER ENGINEERS



MARINE SAFETY ENGINEER

ATTN: PERSONNEL DEPARTMENT
An Equal Opportunity Employer M/F

MARINE ENGINEERS
Platforms/Pipelines

Several of our marine industry clients have openings for BS/MS ME's, CE's, EE's (with 2-4 years of experience) in the design of off-shore platforms (mobil and fixed-leg) and for the design, analysis, and installation of marine pipelines. Position locations are Houston, Tulsa, Calgary, The Hague, and Singapore. Base Salaries to the low $30's. Call or forward resume

ENERGY-RELATED ACTIVITIES GENERALLY INVOLVE COMPLEX EQUIPMENT AND PROCESSES. THESE SYSTEMS MUST BE DEVELOPED THROUGH ENGINEERING RESEARCH IN MATERIALS, DEVICES, AND SYSTEMS. THE ENGINEERS INVOLVED IN SUCH RESEARCH AND DEVELOPMENT PROJECTS HAVE DIVERSE SKILLS THAT MAY BE APPLIED IN OTHER AREAS AS WELL. INVOLVEMENT IN ENERGY ENGINEERING IS A PROFESSIONAL DECISION THAT INVOLVES PERSONAL PREFERENCE, TRAINING, AND AVAILABLE EMPLOYMENT OPPORTUNITIES. FOR INSTANCE, A WELDING ENGINEER MAY CHOOSE TO DEVELOP WELDING TECHNIQUES FOR POWER PLANT COOLANT PIPES OR MAY CHOOSE TO WORK IN OTHER AREAS SUCH AS AUTOMOBILE OR STRUCTURAL WELDING. NEW JERSEY'S WELL-DEVELOPED TECHNICAL INDUSTRIES SHOULD PROVIDE CONTINUED ENERGY-RELATED EMPLOYMENT FOR MANY TYPES OF ENGINEERS.

National Society of Professional Engineers
2020 K. Street, NW
Washington, D.C.   20006

Engineer's Council for Professional Development
345 East 47th Street
New York, New York 10017

DESIGN ENGINEER, MARINE ENVIRONMENT	014.061-010
ENGINEER OF SYSTEM DEVELOPMENT	003.167-026
ENGINEERING ANALYST	020.067-010
INDUSTRIAL-HEALTH ENGINEER	012.167-034
*MARINE ENGINEER	014.061-014
RESEARCH ENGINEER, MARINE EQUIPMENT	014.061-018
*SAFETY ENGINEER	012.061-014
SAFETY ENGINEER, MINES	010.061-026
TRANSPORTATION ENGINEER	005.061-038
WELDING ENGINEER	011.061-026

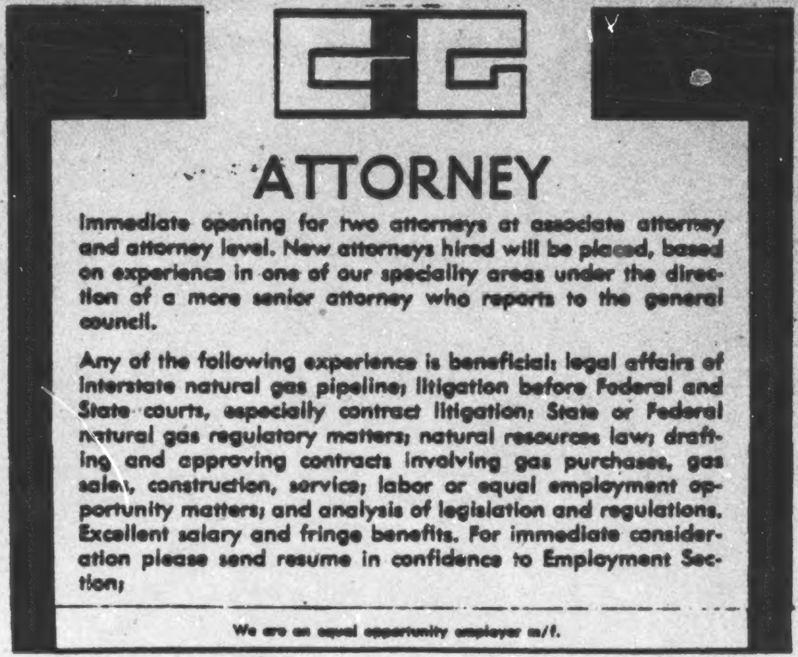
ARCHITECT

ARCHITECTS HAVE BEEN MEETING THE LIVING AND WORKING NEEDS OF PEOPLE THROUGH FUNCTIONAL YET ARTISTIC DESIGNS OF HOMES AND BUILDINGS. TODAY'S CONCERNS ABOUT ENERGY WILL SHAPE THE ARCHITECTS OF TOMORROW, REQUIRING INCREASED IMAGINATION AND TECHNICAL ABILITY TO BLEND ARTISTIC DESIGN WITH ENERGY EFFICIENCY. THE RELATIONSHIP OF THE BUILDING TO THE SUN'S PATH ACROSS THE SKY WILL BECOME THE STARTING POINT FOR PASSIVE USE OF SOLAR ENERGY FOR HEATING AND VENTILATION. NEW DESIGN CONCEPTS, MATERIALS, AND ENERGY SYSTEMS WILL CHALLENGE THE ARCHITECT's ABILITY TO ADJUST DESIGN STYLE. NEW JERSEY'S DEPENDENCE UPON IMPORTED OIL COUPLED WITH ITS DENSE POPULATION AND INDUSTRIAL ACTIVITY WILL CREATE CHALLENGING OPPORTUNITIES FOR A NEW GENERATION OF ARCHITECTS.

The American Institute of Architects
1735 New York Avenue NW
Washington, D.C. 20006

ARCHITECT	001.061-010
ARCHITECT, MARINE	001.061-014

LAWYER



ATTORNEY

Immediate opening for two attorneys at associate attorney and attorney level. New attorneys hired will be placed, based on experience in one of our speciality areas under the direction of a more senior attorney who reports to the general council.

Any of the following experience is beneficial: legal affairs of interstate natural gas pipeline; litigation before Federal and State courts, especially contract litigation; State or Federal natural gas regulatory matters; natural resources law; drafting and approving contracts involving gas purchases, gas sales, construction, service; labor or equal employment opportunity matters; and analysis of legislation and regulations. Excellent salary and fringe benefits. For immediate consideration please send resume in confidence to Employment Section;

We are an equal opportunity employer m/f.

THE IMPORTANCE OF ENERGY AND ITS POTENTIAL IMPACTS ON EMPLOYMENT, PROPERTY VALUE, AND PROFITS MAKE IT THE OBJECT OF MANY DISPUTES THAT CAN ONLY BE SETTLED IN COURT. THIS SITUATION WILL BECOME MORE INVOLVED AS TIME PASSES AND ENERGY BECOMES MORE LIMITED. LEGAL ACTIONS DEALING WITH ENERGY MAY INVOLVE CIVIL LAW, CORPORATE LAW, TORT LAW, PATENT LAW, OR REAL ESTATE LAW. ELECTED LEGISLATURES ARE COMPOSED MOSTLY OF LAWYERS AND THEIR DECISIONS MAY AFFECT THE WAY ENERGY IS PRODUCED, DISTRIBUTED, AND TAXED. SOME LAW SCHOOL STUDENTS ARE SPECIALIZING IN ENERGY-RELATED MATTERS TO BECOME ENERGY SPECIALISTS. NEW JERSEY'S HIGH ENERGY USE AND THE NEED TO REPLACE THE IMPORTED OIL NOW USED FOR FUEL GUARANTEES EMPLOYMENT FOR LEGAL PROFESSIONALS SPECIALIZING IN ENERGY.

formation Services
The American Bar Assocation
1155 East 60th Street
Chicago, Illinois 60637

Association of American Law Schools
Suite 370
One Dupont Circle, NW
Washington, D.C. 20036

LAWYER	110.107-010
*LAWYER, CORPORATION	110.117-022
LAWYER, PATENT	110.117-026
LAWYER, REAL ESTATE	110.117-034

TEACHER

CONSULTANTS/INSTRUCTORS NEEDED

Consultants and/or instructors whose expertise is in solar energy and energy management are invited to submit their outlines for nationally held seminars of 2 to 3 days duration conducted several times per year. Must be able to instruct at the highest level and communicate with experienced personnel in their field. This is a unique opportunity for recognition and compensation with a renown and prestigious sponsor. For consideration please send a brief outline (2 to 3 pages) of each seminar you can teach plus a copy of your bio.

AS ENERGY TECHNOLOGY BECOMES MORE IMPORTANT TO DAILY LIFE, THE PUBLIC MUST SEEK UNDERSTANDING THROUGH EDUCATION. POLITICAL DECISIONS OR VOTING MAY DECIDE MAJOR ENERGY POLICY QUESTIONS. CITIZENS WILL WANT TO KNOW MORE ABOUT ENERGY IN ORDER TO SAVE MONEY THROUGH CONSERVATION OR HOME GENERATION. SOCIAL AND TECHNICAL UNDERSTANDING OF ENERGY BEGINS WITH PUBLIC SCHOOL TEACHING AND TECHNICAL INSTITUTES. TEACHERS USUALLY BEGIN WITH A SCIENCE OR SCIENCE TEACHING EDUCATION, SEEKING CERTIFICATION FOR PUBLIC SCHOOL POSITIONS OR ADVANCED DEGREES FOR COLLEGE TEACHING. SCIENCE TEACHERS WILL BE IN GREATER DEMAND AND ENERGY COURSES SHOULD ATTRACT INCREASED ENROLLMENT.

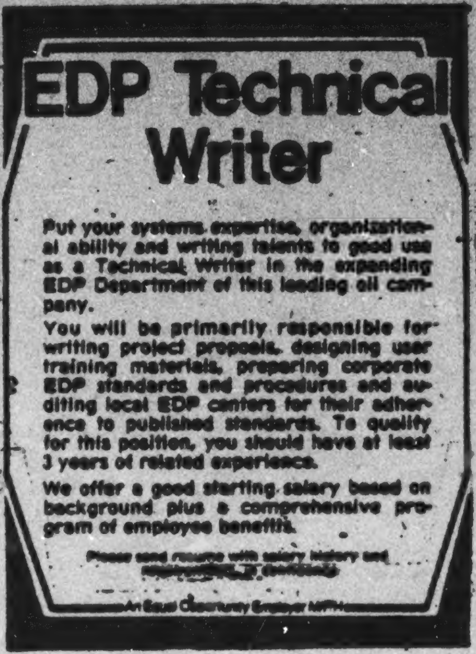
American Federation of Teachers
1012 14th Street NW
Washington, D.C. 20005

National Education Association
1201 16th Street NW
Washington, D.C. 20036

American Council on Education
One Dupont Circle NW
Washington, D.C. 20036

CUSTOMER-SERVICE-REPRESENTATIVE INSTRUCTOR	239.227-010
INSTRUCTOR, VOCATIONAL TRAINING	097.227-014
*TEACHER, ADULT EDUCATION	099.227-030
TEACHER, INDUSTRIAL ARTS	091.221-010
TEACHER, JUNIOR COLLEGE	090.227-010
TEACHER, SECONDARY SCHOOL	091.227-010
TRAINING REPRESENTATIVE	166.227-010

TECHNICAL WRITER / ILLUSTRATOR



EDP Technical Writer

Put your systems expertise, organizational ability and writing talents to good use as a Technical Writer in the expanding EDP Department of this leading oil company.

You will be primarily responsible for writing project proposals, designing user training materials, preparing corporate EDP standards and procedures and auditing local EDP centers for their adherence to published standards. To qualify for this position, you should have at least 3 years of related experience.

We offer a good starting salary based on background plus a comprehensive program of employee benefits.

Please send resume with salary history and [illegible] in confidence

An Equal Opportunity Employer M/F

TECHNICAL WRITERS AND ILLUSTRATORS PRODUCE MATERIAL THAT CONVEYS SCIENTIFIC AND TECHNICAL INFORMATION PRECISELY, ACCURATELY, AND CLEARLY. THEY ARE NEEDED BY ENERGY-RELATED INDUSTRIES TO PRODUCE LITERATURE FOR COMPANY PRODUCTS, TO EXPLAIN PRODUCTS OR PROCESSES TO OTHER PROFESSIONALS, OR TO PROVIDE INFORMATION TO THE PUBLIC. MANY SUCH WRITERS MAY FIND EMPLOYMENT IN THE INFORMATION OFFICE OF ENERGY COMPANIES WHERE WRITING MAY INCLUDE SPEECHES, PRESS RELEASES, OR MEDIA SCRIPTS. THE BEST EDUCATIONAL TRAINING FOR TECHNICAL WRITERS IS A BACHELOR'S DEGREE IN SCIENCE OR ENGINEERING WITH EITHER A MINOR PROGRAM OR EXPERIENCE IN ENGLISH. ILLUSTRATORS MAY BEGIN WORK WITH A DEGREE IN GRAPHICS OR DESIGN. NEW JERSEY EMPLOYMENT FOR TECHNICAL WRITERS AND ILLUSTRATORS SHOULD FOLLOW GENERAL INDUSTRIAL EMPLOYMENT TRENDS.

Society for Technical Communication
Suite 421
1010 Vermont Avenue NW
Washington, D.C. 20005

GRAPHIC DESIGNER	141.061-022
ILLUSTRATOR, MEDICAL AND SCIENTIFIC	141.061-026
TECHNICAL ILLUSTRATOR	017.281-034
*WRITER, TECHNICAL PUBLICATIONS	131.267-026

DRAFTER

DRAFTSPERSONS
ELECTRICAL
STRUCTURAL

DRAFTSPERSON
ELECTRICAL

DESIGNERS & ENGINEERS DRAFTERS.

ELECTRICAL
CONTROLS DESIGN
POWER PLANT

HVAC/PLUMBING
COMMERCIAL-POWER PLANT

INSTRUMENTATION
PNEUMATIC-POWER PLANT

STRUCTURAL
POWER PLANT ENGINEERS
COMMERCIAL DESIGNERS

PIPE STRESS
JR. & SR. ENGINEERS

Many immediate long term NYC, Long Island, Conn., & northern NJ openings. Rush resume & call.

Equal Opportunity Employer m/f

Extra! Extra!
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PIPE SUPPORTS
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ANALYSIS
ALSO MANY OPENINGS FOR:
ELECTRICAL
INSTRUMENTATION
STRUCTURAL
MODELMAKERS
H.V.A.C.

Designers Draftsmen Engineers
ELECTRICAL
MECHANICAL
MACHINE
HVAC
HEAT EXCHANGES
STRUCTURAL

NY & NJ assignments. Call 24 hours a day or send resume.

An Equal Opportunity Employer m/f

DRAFTERS ARE RESPONSIBLE FOR THE PREPARATION OF DETAILED MECHANICAL DRAWINGS BASED UPON SKETCHES AND SPECIFICATIONS. THESE DRAWINGS SERVE AS A GUIDE TO BUILDERS OR FABRICATORS. DRAFTERS WILL BE NEEDED AS PART OF DEVELOPMENT AND PRODUCTION TEAMS WORKING ON ENERGY-RELATED FACILITIES OR DEVICES. AS NEW PRODUCTS ARE DEVELOPED, DRAFTERS WILL BE REQUIRED TO PRODUCE ACCURATE DRAWINGS USED FOR EXPERIMENTAL WORK. TRAINING FOR DRAFTING CAREERS IS ACQUIRED IN TECHNICAL INSTITUTES, COMMUNITY COLLEGES, VOCATIONAL-TECHNICAL SCHOOLS, OR THE ARMED FORCES. NEW JERSEY'S RESEARCH AND INDUSTRIAL ACTIVITIES WILL PROVIDE CONTINUED EMPLOYMENT OPPORTUNITIES FOR DRAFTERS.

American Institute for Design and
Drafting
3119 Price Road
Bartlesville, Oklahoma 74003

International Federation of Professional and Technical Engineers
1126 16th Street NW
Washington, D.C. 20036

DRAFTER, CHIEF, DESIGN	017.161-010
DRAFTER, CIVIL	005.281-010
DRAFTER, DIRECTIONAL SURVEY	010.281-010
DRAFTER, ELECTRICAL	003.281-010

DRAFTER, ENGINEERING	007.281-010
DRAFTER, ENGINEERING	005.281-010
DRAFTER, GEOLOGICAL	010.281-014
DRAFTER, GEOPHYSICAL	010.281-018
DRAFTER, HEATING AND VENTILATING	017.261-034
DRAFTER, MARINE	014.281-010
DRAFTER, MECHANICAL	007.281-010
DRAFTER, OIL AND GAS	017.281-030
DRAFTER, PLUMBING	017.261-038
DRAFTER, REFRIGERATION	017.261-034
DRAFTER, SEISMOGRAPH	010.281-018

ELECTRONICS TECHNICIAN

Engineering Opportunities in Electric Power Conversion

We have immediate career opportunities for the following:

Electronics Engineers

Candidates should have a BSEE (MSEE preferred) with at least five years experience in creating and developing new products and systems utilizing solid state power conversion circuits. A thorough knowledge of high power solid state switching devices and circuits is essential.

Electronics Engineering Assistants

Candidates must have at least three years experience in one or more of the following areas: digital and/or analog control circuits, power conditioning circuits, inverters, and power supplies. The applicants should be experienced in the use of oscilloscopes, spectrum analyzers, and other electronics test equipment. Duties will include fabrication, testing, troubleshooting, and modification of electronic circuitry as well as evaluation of prototype systems in support of new product development efforts.

OUR SOCIETY IS GROWING INCREASINGLY DEPENDENT UPON ELECTRONICS FOR ITS DAY-TO-DAY ACTIVITIES. THE ENERGY FIELD IS CERTAINLY NO EXCEPTION AS ELECTRONIC CONTROLS, AUTOMATIC MONITORS, AND COMPUTER-ASSISTED DIAGNOSTICS ARE BEING USED MORE OFTEN. ENERGY RESEARCH TODAY IS ALSO HEAVILY DEPENDENT UPON ELECTRONICS. ELECTRONICS TECHNICIANS HAVE THE EXPERIENCE AND TRAINING TO MAINTAIN SUCH DEVICES AND CAN REPAIR EQUIPMENT USING CIRCUIT DIAGRAMS, METERS, AND REPLACEMENT PARTS. IN RESEARCH, ELECTRONICS TECHNICIANS ARE OFTEN CALLED UPON TO MODIFY EXISTING EQUIPMENT AS REQUIRED BY RESEARCHERS. A VOCATIONAL-TECHNICAL EDUCATION OR AN ASSOCIATE'S DEGREE IS DESIRABLE TRAINING. THE NEW JERSEY JOB MARKET FOR ELECTRONICS TECHNICIANS SHOULD CONTINUE TO PROVIDE OPENINGS IN BOTH ENERGY RESEARCH AND THE ENERGY-RELATED INDUSTRIES.

Electronic Industries Association
2001 Eye Street NW
Washington, D.C. 20006

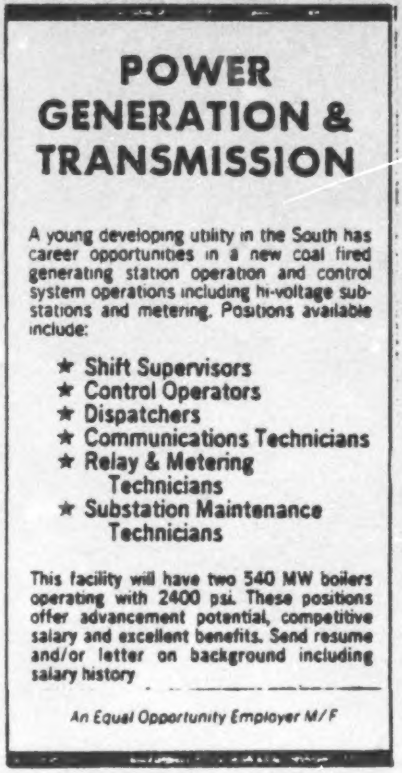
Engineers Council for Professional Development
345 E. 47th Street
New York, New York 10017

Institute for the Certification of Engineering Technicians
2029 K Street NW
Washington, D.C. 20006

American Society for Engineering Education
One Dupont Circle, Suite 400
Washington, D.C. 20036

ELECTRIC - DISTRIBUTION CHECKER	824.281-014
ELECTRICAL TECHNICIAN	003.161-010
*ELECTRONICS TECHNICIAN	003.161-014
INSULATOR TESTER	729.387-026
TROUBLE SHOOTER	952.364-010
TROUBLE SHOOTER	821.261-026
VOLTAGE TESTER	821.381-014

ENGINEERING AND SCIENCE TECHNICIAN



POWER GENERATION & TRANSMISSION

A young developing utility in the South has career opportunities in a new coal fired generating station operation and control system operations including hi-voltage substations and metering. Positions available include:

- ★ Shift Supervisors
- ★ Control Operators
- ★ Dispatchers
- ★ Communications Technicians
- ★ Relay & Metering Technicians
- ★ Substation Maintenance Technicians

This facility will have two 540 MW boilers operating with 2400 psi. These positions offer advancement potential, competitive salary and excellent benefits. Send resume and/or letter on background including salary history

An Equal Opportunity Employer M/F

TODAY'S LARGE POWER PLANTS, REFINERIES, AND OTHER ENERGY FACILITIES CONTAIN MACHINES AND INSTRUMENTATION DESIGNED TO IMPROVE PERFORMANCE AND REDUCE HUMAN EFFORT. HIGH-TECHNOLOGY ENERGY RESEARCH AND DEVELOPMENT POINT TO INCREASINGLY COMPLEX FACILITIES. THIS RESEARCH AND THE ENERGY-RELATED EQUIPMENT THAT IS DEVELOPED REQUIRES TEAMWORK FROM TRAINED TECHNICAL WORKERS. TECHNICIANS TAKE MEASUREMENTS, TROUBLESHOOT EQUIPMENT, HANDLE DATA, AND WORK IN MAINTENANCE AND REPAIR. TECHNICAL JOBS REQUIRE VARYING AMOUNTS OF TRAINING WHICH IS AVAILABLE ON-THE-JOB OR FROM VOCATIONAL-TECHNICAL SCHOOLS, TECHNICAL INSTITUTES, COMMUNITY COLLEGES, AND FOUR-YEAR PROGRAMS. THE GROWTH IN ENERGY-RELATED TECHNOLOGY SHOULD PROVIDE GOOD EMPLOYMENT OPPORTUNITIES FOR ENGINEERING AND SCIENCE TECHNICIANS IN NEW JERSEY.

International Federation of Professional
and Technical Engineers
1126 16th Street NW
Washington, D.C. 20036

Engineers Council for Professional
Development
345 E. 47th Street
New York, New York 10017

CHEMICAL - ENGINEERING TECHNICIAN	008.261-010
CHEMICAL - LABORATORY TECHNICIAN	022.261-010

DUST SAMPLER	939.585-010
FIELD ENGINEER, SPECIALIST	010.261-010
HEAT-TRANSFER TECHNICIAN	007.181-019
MECHANICAL-ENGINEERING TECHNICIAN	007.161-026
OBSERVER, ELECTRICAL PROSPECTING	010.261-014
OBSERVER, GRAVITY PROSPECTING	010.261-018
OBSERVER, SEISMIC PROSPECTING	010.161-018
POLLUTION-CONTROL TECHNICIAN	029.261-014
RADIATION MONITOR	199.167-010
*SENIOR TECHNICIAN CONTROLS	828.261-018
SURVEYER, OIL-WELL DIRECTIONAL	010.261-022
TEST-ENGINE EVALUATOR	010.261-026
TEST-ENGINE OPERATOR	029.261-018
TEST ENGINEER, MARINE EQUIPMENT	014.061-022
TEST ENGINEER, MINING-AND-OILFIELD EQUIPMENT	010.061-030
TEST ENGINEER, NUCLEAR EQUIPMENT	015.061-022

INSTRUMENT TECHNICIAN

INSTRUMENTS PERFORM IMPORTANT MEASURING FUNCTIONS IN POWER PLANTS, REFINERIES, OIL AND GAS WELLS, PIPELINES, AND OTHER ENERGY-RELATED FACILITIES. ALTHOUGH MOST PEOPLE PICTURE MECHANICAL METERS, INSTRUMENTS TODAY MAY ALSO BE ELECTRO-MECHANICAL OR ELECTRONIC. MOST LARGE COMPANIES EMPLOY THEIR OWN INSTRUMENT TECHNICIANS, BUT INSTRUMENT MANUFACTURERS THEMSELVES MAY HAVE THEIR OWN TECHNICAL SERVICE UNITS. TECHNICIANS USE HAND TOOLS TO REMOVE AND INSPECT INSTRUMENTS AND PERFORM MINOR REPAIRS IN THE FIELD. MOST INSTRUMENTS ARE REPAIRED AND ADJUSTED IN WELL-EQUIPPED SHOPS. A VOCATIONAL-TECHNICAL EDUCATION FOLLOWED BY ON-THE-JOB EXPERIENCE IS DESIRABLE TRAINING. EMPLOYMENT FOR INSTRUMENT TECHNICIANS SHOULD FOLLOW THE TRENDS SET BY ENERGY-RELATED INDUSTRY IN NEW JERSEY.

Engineers Council for Professional Development
345 E. 47th Street
New York, New York 10017

ELECTRIC-METER REPAIRER	729.281-014
ELECTRIC-METER TESTER	821.381-010
FIELD-MECHANICAL-METER TESTER	953.281-010
GAS-METER MECHANIC	710.381-022
GAS-METER MECHANIC	710.684-026
GAS-METER PROVER	710.281-022
GAS-REGULATOR REPAIRER	710.381-026
INDUSTRIAL-GAS SERVICER	637.261-022
INSIDE-METER TESTER	729.281-034

INSTRUMENT-MAKER AND REPAIRER	600.280-014
INSTRUMENT TECHNICIAN	710.281-030
METER INSPECTOR	710.384-022
RADIOACTIVITY-INSTRUMENT MAINTENANCE TECHNICIAN	828.281.022
REGULATOR INSPECTOR	820.361-018
RELAY TESTER	729.281-038
SALVAGE REPAIRER	729.384-018
TRANSFORMER TESTER	724.281-010

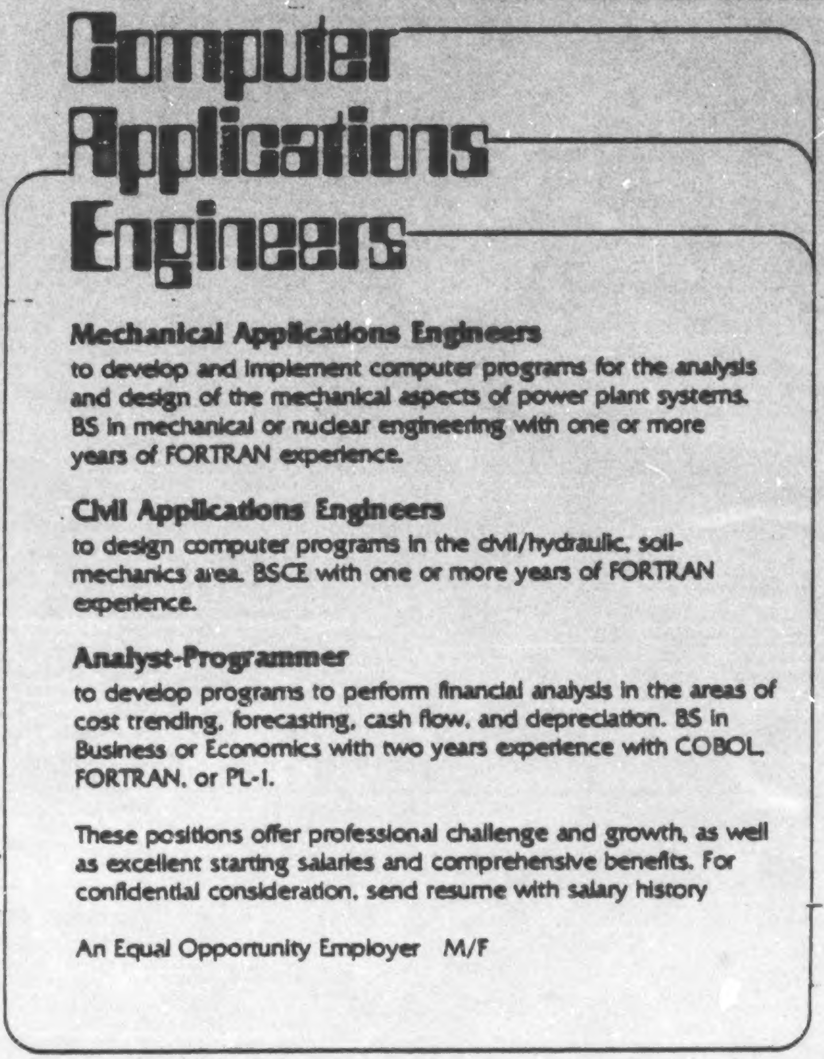
LABORATORY TECHNICIAN

A WIDE VARIETY OF CHEMICAL ANALYSIS MUST BE DONE FOR TODAY'S ENERGY-RELATED ACTIVITIES. ENVIRONMENTAL ANALYSIS MUST BE COMPLETED FOR IMPACT STATEMENTS AND MONITORING REPORTS. PRODUCT ANALYSIS IS USED FOR QUALITY CONTROL IN THE REFINING INDUSTRY. BOILER FEEDWATER MUST BE HELD TO CERTAIN PURITY STANDARDS AND FUELS RESEARCH DEMANDS RAPID AND ACCURATE PRODUCT ANALYSIS. A CHEMISTRY LABORATORY TECHNICIAN USES LABORATORY EQUIPMENT AND STANDARD PROCEDURES TO ANALYZE SAMPLES OF ROUTINE INTEREST. WORK MAY BE AS SIMPLE AS A COLOR INDICATOR TEST OR AS COMPLEX AS THAT ACHIEVED BY MODERN EQUIPMENT. A HIGH SCHOOL DIPLOMA AND ON-THE-JOB TRAINING ARE USUALLY ALL THAT IS REQUIRED FOR MOST JOBS, BUT A BACHELOR'S DEGREE OFTEN ASSURES CHALLENGING EMPLOYMENT. NEW JERSEY'S RESEARCH INDUSTRY WILL CONTINUE TO PROVIDE EMPLOYMENT FOR LABORATORY TECHNICIANS.

American Chemical Society
1155 16th Street NW
Washington, D.C. 20036

LABORATORY ASSISTANT	024.381-010
LABORATORY HELPER	821.564-010
LABORATORY SAMPLER	549.587-014
LABORATORY TECHNICIAN	029.361-018
LABORATORY TESTER	029.261-010
TESTER	029.261-022

PROGRAMMER



Computer Applications Engineers

Mechanical Applications Engineers
to develop and implement computer programs for the analysis and design of the mechanical aspects of power plant systems. BS in mechanical or nuclear engineering with one or more years of FORTRAN experience.

Civil Applications Engineers
to design computer programs in the civil/hydraulic, soil-mechanics area. BSCE with one or more years of FORTRAN experience.

Analyst-Programmer
to develop programs to perform financial analysis in the areas of cost trending, forecasting, cash flow, and depreciation. BS in Business or Economics with two years experience with COBOL, FORTRAN, or PL-1.

These positions offer professional challenge and growth, as well as excellent starting salaries and comprehensive benefits. For confidential consideration, send resume with salary history

An Equal Opportunity Employer M/F

THE GROWTH OF INFORMATION AND THE USE OF COMPUTERS HAVE COUPLED TO MAKE COMPUTER PROGRAMMING A RAPIDLY GROWING FIELD. THERE IS A GREAT DEMAND TODAY FOR PROGRAMMERS. COMPUTERS ARE APPLIED TO A WIDE VARIETY OF ENERGY-RELATED PROBLEMS. AMONG THESE ARE ANALYSIS OF DATA FOR FUEL RESERVES EXPLORATION, ANALYSIS OF POWER PLANT AND REACTOR DESIGN, CONTROL OF REFINERIES AND ELECTRIC POWER DISTRIBUTION, RECORD-KEEPING AND BUSINESS ANALYSIS, AND SIMULATION OF ENVIRONMENTAL IMPACTS. THE FUTURE MAY BRING IMPROVEMENTS IN THESE AREAS AS WELL AS EXPANDED USE FOR SUPPLY AND MARKET ANALYSIS. THE COMPUTER WILL BE USED IN NEARLY ALL PHASES OF ENERGY SUPPLY AND OPPORTUNITIES FOR PROGRAMMERS WILL EXPAND IN NEW JERSEY.

American Federation of Information Processing Societies
210 Summit Avenue
Montvale, New Jersey 07645

Association for Computing Machinery
1133 Avenue of the Americas
New York, New York 10036

COMPUTER-LABORATORY TECHNICIAN	003.161-014
PROGRAMMER-ANALYST	012.167-066
PROGRAMMER, BUSINESS	020.162.014
PROGRAMMER, ENGINEERING AND SCIENTIFIC	020.167-022
PROGRAMMER, INFORMATION SYSTEM	020.187-010
PROGRAMMER, PROCESS CONTROL	020.187-014

SURVEYOR

MOST ENERGY-RELATED ACTIVITIES REQUIRE LAND USE. EXTRACTION OF OIL AND COAL REQUIRES CAREFUL LOCATION OF WELLS AND MINE SHAFTS. PIPELINES AND TRANSMISSION LINES MUST CROSS THE LAND ALONG WELL-PLANNED RIGHTS OF WAY. POWER PLANTS, REFINERIES, AND OTHER ENERGY FACILITIES MUST BE BUILT ACCORDING TO CAREFULLY-ENGINEERED DESIGNS. SURVEYORS MAKE CAREFUL MEASUREMENTS TO LOCATE BOUNDARIES, WELLS, PIPELINE PATHWAYS, BUILDINGS, AND OTHER POINTS OF CONCERN TO ENGINEERING STAFFS. WORKERS BEGINNING SURVEYING CAREERS WITH A VOCATIONAL-TECHNICAL OR HIGH SCHOOL DIPLOMA CAN GAIN ADDITIONAL ON-THE-JOB EXPERIENCE AS HELPERS. HEAVY LAND USE AND THE CONTINUING NEED FOR ENERGY-RELATED CONSTRUCTION SHOULD PROVIDE INCREASING EMPLOYMENT FOR SURVEYORS IN NEW JERSEY.

American Congress on Surveying and Mapping
210 Little Falls Street
Falls Church, Virginia 22046

LAND SURVEYOR	018.167-018
PHOTOGRAMMETRIC ENGINEER	018.167-026
SURVEYOR ASSISTANT, INSTRUMENTS	018.167-034
SURVEYOR, GEOPHYSICAL PROSPECTING	018.167-042
SURVEYOR, MINE	018.167-050

CARPENTER

CARPENTRY IS A TRADE THAT PLAYS A SUPPORTIVE ROLE IN MANY ENERGY-RELATED INDUSTRIES. MOST "ROUGH" CARPENTERS WHO CONTRIBUTE TO THE ENERGY MARKET BUILD FORMS USED IN THE CONSTRUCTION OF POWER PLANTS AND REFINERIES. CARPENTERS ARE PART OF MINING CREWS, ERECTING FRAMING TIMBERS AND PERFORMING REPAIR TASKS. EMPLOYMENT FOR CARPENTERS IS FOUND IN SUPPORT WORK FOR WELL OPERATION, REFINERIES, AND POWER PLANTS. MANY HOME BUILDERS ARE NOW PAYING ATTENTION TO ENERGY-SAVING DESIGNS AND BUILDING METHODS. ALTHOUGH BUILDING TRADES ARE TAUGHT AT VOCATIONAL-TECHNICAL SCHOOLS, APPRENTICESHIP OR ON-THE-JOB TRAINING REMAINS THE BEST INTRODUCTION TO CARPENTRY CAREERS. MOST CARPENTRY JOBS AVAILABLE IN NEW JERSEY ARE NOT ENERGY-RELATED.

Associated General Contractors of America, Inc.
1957 E Street NW.
Washington, D.C. 20006

United Brotherhood of Carpenters and Joiners of America
101 Constitution Avenue
Washington, D.C. 20005

CARPENTER	860.381-022
CARPENTER, MAINTENANCE	860.281-010
CARPENTER, MINE	860.281-010
CARPENTER, REFRIGERATOR	860.381-022
CARPENTER, ROUGH	860.381-042
FORM BUILDER	860.381-046
STOPPING BUILDER	869.684-058
TIMBER FRAMER	869.381-034

CEMENT MASON/ BRICKLAYER

CEMENT MASONS PLAY A SUPPORTIVE ROLE IN THE ENERGY INDUSTRY. THE CONSTRUCTION OF MODERN ENERGY FACILITIES SUCH AS REFINERIES, COOLING TOWERS, AND POWER PLANTS INVOLVES ERECTING CONCRETE STRUCTURES THAT ARE MIXED, POURED, AND FINISHED BY CEMENT MASONS. STEEL REINFORCED CONCRETE IS USED IN SUCH FACILITIES. MOST CEMENT MASONS EMPLOYED IN SUCH LARGE PROJECTS WORK FOR CONTRACTORS SPECIALIZING IN CONCRETE WORK. MASONRY SKILLS ARE USUALLY LEARNED ON-THE-JOB OR IN APPRENTICESHIP PROGRAMS RUN BY LARGE CONTRACTORS. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS PREFERRED FOR EMPLOYMENT. MOST CEMENT MASON JOBS AVAILABLE IN NEW JERSEY ARE NOT ENERGY-RELATED.

Associated General Contractors of America, Inc.
1957 E Street NW.
Washington, D.C. 20006

International Union of Bricklayers and Allied Craftsmen
815 15th Street NW.
Washington, D.C. 20005

Operative Plasters' and Cement Mason International
Association of the United States and Canada
1125 17th Street NW.
Washington, D.C. 20036

CEMENT MASON	844.364-010

CONSTRUCTION LABORER

THE BACKBONE OF CONSTRUCTION CREWS HAS ALWAYS BEEN THE LABORER. LABORERS ARE NEEDED FOR THE CONSTRUCTION OF ALL LARGE ENERGY FACILITIES SUCH AS DAMS, PIPELINES, REFINERIES, OR POWER PLANTS. FROM SITE CLEARING TO FINAL CLEAN-UP, LABORERS WORK ALONG WITH SKILLED TRADE WORKERS. THEY DO MANUAL TASKS SUCH AS LOADING OR UNLOADING, ERECTING SCAFFOLDS AND BRACES, OR MIXING CONCRETE. MANY LABORERS ARE LEARNING THE BUILDING TRADES AND ARE WORKING WITH MASONS, IRON WORKERS, OR PIPEFITTERS. MOST LABOR JOBS REQUIRE NO FORMAL TRAINING TO START WORK, BUT BECAUSE OF AUTOMATION, EXPERIENCED LABORERS OFTEN OPERATE POWER EQUIPMENT. ALTHOUGH TOOLS AND MACHINES ARE REPLACING LABOR, THE JOB MARKET FOR NEW JERSEY LABORERS WILL KEEP PACE WITH OVERALL EMPLOYMENT TRENDS.

Laborers' International Union of North America
905 16th Street NW.
Washington, D.C. 20006

Laborers'-Associated General Contractors' Education and Training Program
1730 Rhode Island Avenue, Suite 909
Washington, D.C. 20036

CABLE PULLER	829.684-018
CONSTRUCTION WORKER	869.664-014
LABORER, CONSTRUCTION OR LEAK GANG	862.684-014
LABORER, ELECTRIC POWER AND TRANSMISSION LINE	869.687-026
LABORER, HOISTING	921.667-022
LABORER, PILE DRIVING, GROUN WORK	869.687-026
LABORER, PIPE LINES	869.687-026
STOPPING BUILDER	869.684-058

ELECTRICIAN

ELECTRICIANS ARE INVOLVED IN ENERGY IN TWO WAYS. FIRST, CONSTRUCTION ELECTRICIANS INSTALL POWER SYSTEMS IN LARGE FACILITIES. SUCH SYSTEMS INCLUDE HEATING, LIGHTING, AIR-CONDITIONING, AND REFRIGERATION UNITS. THEIR SKILL IS REQUIRED IN BUILDING POWER PLANTS, SUBSTATIONS, PROCESS CONTROL ROOMS, AND OTHER ENERGY FACILITIES. SECOND, ELECTRICIANS AND ELECTRICAL CONTRACTORS WHO WIRE HOMES AND BUSINESSES CAN HELP CONSERVE POWER BY CAREFUL DESIGN AND CHIOCE OF MATERIALS. THE BEST WAY TO LEARN THE TRADE IS IN AN APPRENTICESHIP PROGRAM FOLLOWING HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL. MOST ELECTRICIAN JOBS AVAILABLE IN NEW JERSEY ARE NOT ENERGY-RELATED.

International Brotherhood of Electrical Workers
1125 15th Street NW.
Washington, D.C. 20005

CABLE INSTALLER-REPAIRER	821.361-010
ELECTRIC-METER INSTALLER	821.361-014
ELECTRIC-METER INSTALLER	821.684-010
ELECTRICAL-LINE SPLICER	728.684-014
ELECTRICIAN	824.261-010
WIRER, STREET LIGHT	821.684-018

INSULATION WORKER

AS ENERGY MANAGEMENT AND CONSERVATION BECOME MORE IMPORTANT IN THE BUILDING TRADES, THE IMPORTANCE OF PROPER INSULATION WILL NOT BE OVERLOOKED. PROPER INSULATION OF NEW HOMES IS CURRENT PRACTICE AND INSULATING OLDER HOMES IS INCREASING. WALL SPACE, ROOFS, PIPES, DUCTS, AND FLOORS SHOULD HAVE SOME INSULATION. WORKERS MAY TACK ON BATTS, GLUE PRE-FORMED STYRENES, APPLY FOAM WITH A HOSE, OR BLOW-FILL INSULATING BEADS. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS PREFERRED FOR JOB ENTRY, WITH ON-THE-JOB TRAINING PROVIDED BY CONTRACTORS. THE DENSE POPULATION AND HEAVY INDUSTRY IN NEW JERSEY SHOULD PROVIDE CONTINUED EMPLOYMENT FOR INSULATION WORKERS.

International Association of Heat and Frost
Insulators and Asbestos Workers

INSULATION WORKER 869.664-014

IRON WORKER

TWO TYPES OF IRON WORKERS, THE STRUCTURAL IRONWORKER AND THE REINFORCING IRONWORKER, PLAY A MAJOR ROLE IN ENERGY-RELATED CONSTRUCTION. STRUCTURAL IRONWORKERS POSITION AND FASTEN STEEL BEAMS IN THE CONSTRUCTION OF POWER PLANTS AS WELL AS ERECTING FLOOR DECKS AND STORAGE TANKS. REINFORCING IRONWORKERS CUT AND MOUNT REINFORCING BARS OR MESH TO BE USED IN REINFORCED CONCRETE STRUCTURES SUCH AS POWER PLANTS OR DAMS. IRON WORKERS GENERALLY WORK FOR LARGE CONTRACTORS. APPRENTICESHIP OR SOMETIMES ON-THE-JOB TRAINING FOLLOWS EMPLOYMENT. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS DESIRABLE. MOST NEW JERSEY IRON WORKERS ARE NOT WORKING ON ENERGY-RELATED PROJECTS.

Associated General Contractors of America, Inc.
1957 E Street NW.
Washington, D.C. 20006

United Steelworkers of America
Five Gateway Center
Pittsburgh, PA 15222

REINFORCING METAL WORKER	801.684-026
REINFORCING-STEEL WORKER, WIRE MESH	869.687-026
RIVET HEATER	504.485-010
RIVETER, PNEUMATIC	800.684-014
STRUCTURAL STEEL WORKER	801.361-014

OPERATING ENGINEER

OPERATING ENGINEERS WORK AT THE CONTROLS OF CRANES, BULLDOZERS, PAVERS, AND OTHER HEAVY CONSTRUCTION EQUIPMENT. MOST ENERGY-RELATED EMPLOYMENT IS FOUND IN THE CONSTRUCTION OF POWER PLANTS, PIPELINES, REFINERIES, AND OTHER LARGE ENERGY FACILITIES. SOLAR PANELS AND WIND GENERATORS ARE LIFTED INTO PLACE BY CRANE OPERATORS. BULLDOZER OPERATORS CLEAR THE LAND FOR POWER PLANTS, REFINERIES, AND PIPELINES. WORK MAY BEGIN AS AN EQUIPMENT OILER OR AS A HELPER IN AN APPRENTICESHIP PROGRAM. SOME PRIVATE TRADE SCHOOLS OFFER FORMAL TRAINING IN EQUIPMENT OPERATION. JOB APPLICANTS SHOULD HAVE A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA. MOST NEW JERSEY OPERATING ENGINEERS ARE NOT WORKING ON ENERGY-RELATED PROJECTS.

Associated General Contractors of America, Inc.
1957 E Street, NW.
Washington, D.C. 20006

International Union of Operating Engineers
1125 17th Street NW.
Washington, D.C. 20036

CONSTRUCTION WORKER	869.687-026
DERRICK OPERATOR	921.663-022
FRONT-END LOADER OPERATOR	921.683-042
HOISTING ENGINEER	921.663-030
OPERATING ENGINEER	859.683-010
PIPE-WRAPPING-MACHINE OPERATOR	862.682-014
SCRAPER OPERATOR	850.683-038
TRACTOR OPERATOR	929.683--14
TRUCK-CRANE OPERATOR	921.663-062

PIPEFITTER

WHILE PLUMBERS INSTALL WATER AND WASTE DISPOSAL SYSTEMS, PIPEFITTERS INSTALL HIGH AND LOW-PRESSURE PIPES FOR WATER, STEAM, AND OTHER GASSES. PIPEFITTERS MAY WORK ON ENERGY-RELATED PROJECTS SUCH AS PIPELINES OR POWER PLANTS. PIPELINE WORK IS HIGHLY MECHANIZED AND MOST WORK INVOLVES EQUIPMENT OPERATION. POWER PLANT CONSTRUCTION INVOLVES THE ABILITIES TO BE ACCURATE AND SKILLFUL. NUCLEAR PLANT PIPING IS DONE ONLY BY CERTIFIED WELDERS AND IS CAREFULLY INSPECTED BY X-RAY. APPRENTICESHIP PROGRAMS ARE THE BEST WAY TO LEARN THE CRAFT. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS DESIRABLE FOR EMPLOYMENT. MOST NEW JERSEY PIPEFITTING JOBS ARE NOT DIRECTLY RELATED TO ENERGY.

United Association of Journeymen Apprentices of the
Plumbing and Pipefitting Industry of the United
States and Canada
901 Massachusetts Avenue
Washington, D.C. 20001

FURNACE INSTALLER	862.361-010
GAS-MAIN FITTER	862.361-014
GAS-METER INSTALLER	953.364-010
INDUSTRIAL-GAS FITTER	862.381-014
PIPE FITTER	862.381-018
PIPE INSTALLER	869.381-018

PLUMBER

THE USE OF SOLAR ENERGY FOR HOT WATER AND SPACE HEATING SHOULD PROVIDE ENERGY-RELATED EMPLOYMENT FOR PLUMBERS. SOLAR HOT WATER INVOLVES THE INSTALLATION OF COLLECTORS, AN AUXILIARY STORAGE TANK, AND CONNECTING PLUMBING. SPACE HEATING MAY USE HOT WATER TO TRANSFER AND STORE SOLAR ENERGY. IN ADDITION, PLUMBERS CAN CONTRIBUTE TO ENERGY CONSERVATION BY USING ENERGY-EFFICIENT HEATERS AND INSULATING PIPES. PLUMBING TRADES ARE TAUGHT AT VOCATIONAL-TECHNICAL SCHOOLS. EMPLOYERS USE ON-THE-JOB EXPERIENCE OR APPRENTICESHIPS TO TRAIN NEW PLUMBERS. FEW PLUMBERS IN NEW JERSEY WILL SPECIALIZE ONLY IN SOLAR-RELATED WORK, ALTHOUGH MANY WILL PRACTICE ENERGY CONSERVATION IN PLUMBING.

National Association of Plumbing-Heating-Cooling
Contractors
1016 20th Street NW.
Washington, D.C. 20036

PLUMBER 862.381-030

BOILERMAKER

PRESSURE VESSELS AND BOILERS FOR COMMERCIAL AND INDUSTRIAL POWER PLANTS ARE FABRICATED BY BOILERMAKERS. PARTS FOR THESE VESSELS AND BOILERS ARE MARKED-OFF BY LAYOUT WORKERS AND ASSEMBLED BY FITTERS. BOILERMAKERS COMPLETE THE ASSEMBLY BY WELDING OR RIVITING THE PARTS TOGETHER. NUCLEAR PRESSURE VESSELS ARE MADE IN THE SHOP TO EXACTING DESIGNS BY LICENSED BOILERMAKERS. LARGE BOILERS MAY BE ASSEMBLED AT THE CONSTRUCTION SITE. APPRENTICESHIP PROGRAMS ARE THE BEST WAY TO LEARN THE TRADE, BUT MANY BOILERMAKERS LEARN THROUGH ON-THE-JOB EXPERIENCE. EMPLOYERS PREFER HIGH SCHOOL OR VOCATIONAL TECHNICAL SCHOOL GRADUATES. EMPLOYMENT OPPORTUNITIES FOR BOILERMAKERS IN NEW JERSEY MAY CONTINUE ITS DOWNWARD TREND WHICH BEGAN IN 1969.

International Brotherhood of Boilermakers,
Iron Shipbuilders, Blacksmiths, Forgers,
and Helpers

BOILERMAKER	805.261-014
BOILERMAKER	805.381-010
BOILERMAKER FITTER	805.361-014
BOILERMAKER HELPER	805.687-010
BOILERMAKER HELPER	805.664-010

ELECTROPLATER

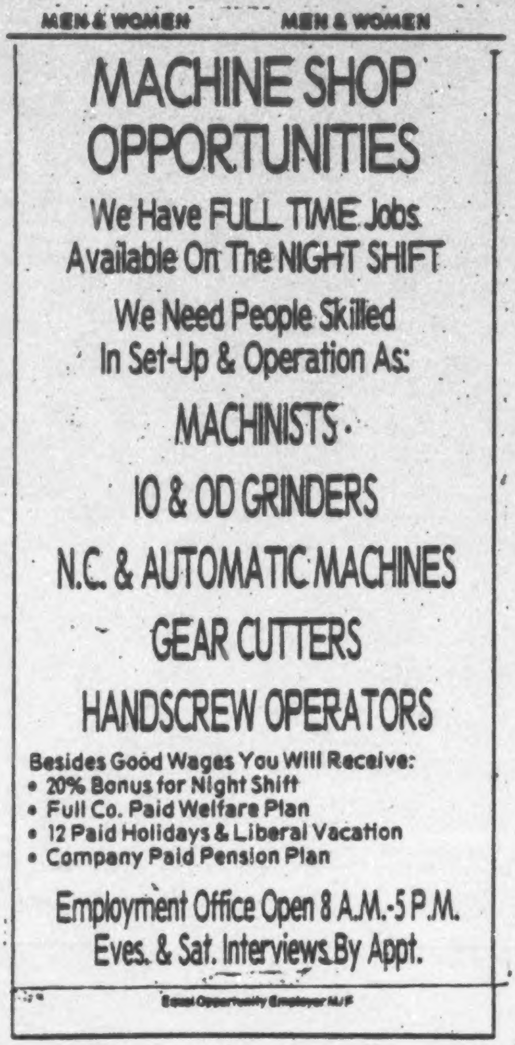
ALTHOUGH MOST ELECTROPLATERS ARE NOT EMPLOYED BY ENERGY-RELATED INDUSTRIES, SOME MAY FIND MEANINGFUL WORK IN THE RAPIDLY-EXPANDING SOLAR PANEL INDUSTRY. PANELS FOR HOT WATER HEAT AND SPACE HEAT MUST BE PLATED WITH A MATERIAL TO REDUCE HEAT LOSS FROM THE PANEL. SUCH SOLAR PANELS ARE MANUFACTURED BY EITHER VERY LARGE OR RELATIVELY SMALL COMPANIES. SUCH STARTING EMPLOYMENT IS BEST HAD IN A LARGE CONCERN THAT HAS AN ON-THE-JOB TRAINING POLICY. SMALL COMPANIES WOULD REQUIRE AN EXPRIENCED WORKER. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS DESIRABLE. MOST ELECTROPLATING EMPLOYMENT IN NEW JERSEY IS NOT DIRECTLY ENERGY-RELATED.

American Electroplaters Society, Inc.
1201 Louisiana Avenue
Winter Park, Florida 23609

National Association of Metal Finishers
22 South Park
Montclair, New Jersey 07042

ELECTROLESS PLATER	505.684-010
PLATER	500.380-010
PLATER, PRODUCTION	500.365-010

MACHINIST



MEN & WOMEN MEN & WOMEN

MACHINE SHOP OPPORTUNITIES

We Have FULL TIME Jobs
Available On The NIGHT SHIFT

We Need People Skilled
In Set-Up & Operation As:

MACHINISTS

IO & OD GRINDERS

N.C. & AUTOMATIC MACHINES

GEAR CUTTERS

HANDSCREW OPERATORS

Besides Good Wages You Will Receive:
- 20% Bonus for Night Shift
- Full Co. Paid Welfare Plan
- 12 Paid Holidays & Liberal Vacation
- Company Paid Pension Plan

Employment Office Open 8 A.M.-5 P.M.
Eves. & Sat. Interviews By Appt.

Equal Opportunity Employer M/F

MACHINISTS OPERATE MACHINES THAT SHAPE METAL PARTS. SUCH MACHINES INCLUDE GRINDING MACHINES, MILLING MACHINES, BORING MACHINES, LATHES, AND DRILL PRESSES. ALL-AROUND MACHINISTS PERFORM A WIDE VARIETY OF MACHINING TASKS. MACHINE TOOL OPERATORS TEND A SINGLE PRODUCTION MACHINE AND SET-UP WORKERS PREPARE MACHINES FOR CERTAIN JOBS. TOOL-AND-DIE MAKERS MAKE MACHINE TOOLS USED BY OTHERS. APPRENTICESHIP TRAINING IS THE BEST WAY TO LEARN MACHINING. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS DESIRABLE FOR EMPLOYMENT. MOST MACHINING OCCUPATIONS IN NEW JERSEY ARE NOT ENERGY-RELATED.

International Association of
Machinists and Aerospace Workers
1300 Connecticut Avenue NW
Washington, D.C. 20036

International Union of Electrical
Radio and Machine Workers
1126 16th Street NW
Washington, D.C. 20036

LAY-OUT WORKER	600.281-018
MACHINIST	600.280-022
MACHINIST, EXPERIMENTAL	600.280-038
TOOL-MACHINE SET-UP OPERATOR	601.280-054

SHEET METAL WORKER

METAL WORKER

METAL FABRICATING JOB SHOP

PRESS BRAKE OPERATOR

Experience required.

SHEETMETAL MECHANIC

LAY UP MAN/W

SHEET-METAL WORKERS ARE INDIRECTLY INVOLVED IN ENERGY. THEY FABRICATE AND INSTALL DUCTS FOR HEATING, VENTILATING, AND AIR-CONDITIONING SYSTEMS. THEY ALSO FABRICATE ALUMINUM SIDING AND FLAT PLATES FOR SOLAR PANELS WHICH BOTH MAY CONTRIBUTE TO THE CONSERVATION OF FOSSIL FUELS. MOST FABRICATION IS DONE IN SHOPS WHERE HAND TOOLS AND POWER TOOLS ARE USED FOLLOWING PLANS OR DRAWINGS. MOST SHEET-METAL WORKERS IN CONSTRUCTION ARE EMPLOYED BY HEATING, VENTILATING, AND AIR-CONDITIONING CONTRACTORS. MOST TRADE SKILLS ARE LEARNED IN APPRENTICESHIP PROGRAMS. A HIGH-SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS DESIRABLE FOR EMPLOYMENT. EMPLOYMENT FOR SHEET-METAL WORKERS IN NEW JERSEY'S HEATING, VENTILATING, AND AIR CONDITIONING INDUSTRY WILL GROW AT THE SAME RATE AS OTHER BUILDING TRADES.

Sheet Metal and Air Conditioning Contractors'
National Association, Inc.
8224 Old Courthouse Road
Tyson's Corner, Yienna, Virginia 22180

DUCT INSTALLER	869.664-014
SHEET-METAL WORKER	804.281-010

WELDER

ALTHOUGH MOST WELDING JOBS ARE NOT DIRECTLY RELATED TO ENERGY, SOME WELDERS WORK IN ENERGY-RELATED FABRICATION. CONSTRUCTION OF REFINERIES AND POWER PLANTS REQUIRES WELDING OF PRESSURE VESSELS, PIPING, CONTAINMENT VESSELS, AND PROCESS CONTAINERS. MOST OF THESE JOBS ARE PERFORMED ON-SITE. GAS WELDING IS GENERALLY THE TECHNIQUE USED. ACCURACY AND SKILL ARE REQUIRED AS MOST SUCH FACILITIES ARE BUILT TO ORDER. CERTIFICATION IS REQUIRED FOR NUCLEAR WELDERS. EMPLOYERS GENERALLY REQUIRE A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA AND TRAINING INVOLVES ON-THE-JOB EXPERIENCE OR APPRENTICESHIP PROGRAMS. NEW JERSEY EMPLOYS FEW WELDERS IN ENERGY-RELATED POSITIONS.

The American Welding Society
2501 NW 7th Street
Miami, Florida 33125

WELDER, ARC	810.384-014
WELDER, GAS	811.684-014
WELDING TECHNICIAN	011.261-014

AIR CONDITIONING, HEATING, AND REFRIGERATION MECHANIC

HEATING, REFRIGERATION, AND AIR-CONDITIONING MECHANICS ARE SKILLED WORKERS WHO INSTALL, MAINTAIN, AND REPAIR CLIMATE CONTROL SYSTEMS. SUCH SYSTEMS ARE FOUND IN HOMES AS WELL AS BUSINESSES AND INDUSTRIES. JOB TITLES OFTEN REFLECT THE TYPE OF WORK DONE, SUCH AS AIR-CONDITIONING AND REFRIGERATION MECHANIC, FURNACE INSTALLER, OIL BURNER MECHANIC, AND GAS BURNER MECHANIC. THESE WORKERS CAN INSTALL SYSTEMS ACCORDING TO PLANS AND HAVE THE SKILL TO DIAGNOSE FAULTS AND MAKE REPAIRS USING HAND TOOLS. TRAINING IS AVAILABLE THROUGH COURSES IN VOCATIONAL-TECHNICAL SCHOOLS AND THROUGH ON-THE-JOB EXPERIENCE. EMPLOYMENT FOR HEATING, REFRIGERATION, AND AIR-CONDITIONING MECHANICS IN NEW JERSEY SHOULD INCREASE DUE TO INDUSTRY GROWTH.

Air Conditioning and Refrigeration Institute
1815 N. Fort Meyer Drive
Arlington, VA 22209

American Gas Association, Inc.
1515 Wilson Blvd.
Arlington, VA 22209

AIR-CONDITIONING MECHANIC, INDUSTRIAL	637.261-014
AIR-CONDITIONING-UNIT TESTER	827.361-010
BOILERHOUSE MECHANIC	805.361-010
ENVIRONMENTAL-CONTROL-SYSTEM-INSTALLER SERVICER	637.261-014
FURNACE INSTALLER	862.361-010
FURNACE INSTALLER AND REPAIRER, HOT AIR	869.281-010
OIL-BURNER-SERVICER-AND-INSTALLER	862.281-018
REFRIGERATION MECHANIC	637.261-026
REFRIGERATION MECHANIC	827.361-014
REFRIGERATION UNIT REPAIRER	637.381-014
STOKER ERECTOR-AND-SERVICER	637.281-014

ENGINE MECHANIC

THE EFFORT TO INCREASE MILEAGE AND REDUCE POLLUTION HAS MADE GAS AND DIESEL ENGINES MORE COMPLEX THAN EVER BEFORE. STATE AUTO EMISSION STANDARDS AND THE MOTORISTS' DESIRE TO REDUCE FUEL BILLS REQUIRE CAREFUL TUNING AND MAINTENANCE OF AUTO ENGINES. ENGINE MECHANICS TODAY MUST UNDERSTAND AND USE ELECTRONIC EQUIPMENT TO CHECK AN ENGINE AND BE ABLE TO SKILLFULLY USE HAND TOOLS TO MAKE REQUIRED ADJUSTMENTS. SUCH JOBS OFTEN BEGIN WITH WORK PUMPING GAS WHILE EXPERIENCE IS GAINED AT MINOR REPAIRS. DIESEL MECHANICS OFTEN WORK AT COMPANY GARAGES. COURSES ARE AVAILABLE IN VOCATIONAL-TECHNICAL SCHOOLS, COMMUNITY COLLEGES, AND ADULT NIGHT SCHOOLS. AUTO MAKERS PROVIDE FACTORY TRAINING FOR WORKERS IN LARGE, COMPANY SHOPS. MOST NEW JERSEY ENGINE MECHANIC'S WORK IS NOT DIRECTLY RELATED TO ENERGY CONSERVATION.

Automotive Service Industry Association
230 North Michigan Avenue
Chicago, IL 60601

Automotive Service Councils, Inc.
188 Industrial Drive, Suite 112
Elmhurst, IL 60126

American Trucking Associations, Inc.
1616 P Street, NW.
Washington, D.C. 20036

AUTOMOBILE MECHANIC, MOTOR	620.261-010
AUTOMOTIVE TECHNICIAN, EXHAUST EMISSIONS	620.281-014
BUS INSPECTOR	620.281-030
CARBURETOR MECHANIC	620.281-034
DIESEL MECHANIC	625.281-010
ENGINE REPAIRER-MECHANIC, BUS	620.261-010
ENGINE REPAIRER, SERVICE	625.281-018
FUEL-INJECTION SERVICER	625.281-022
GAS-ENGINE REPAIRER	625.281-026
TUNE-UP MECHANIC	620.281-066
VEHICLE-FUEL-SYSTEMS CONVERTER	620.281-070

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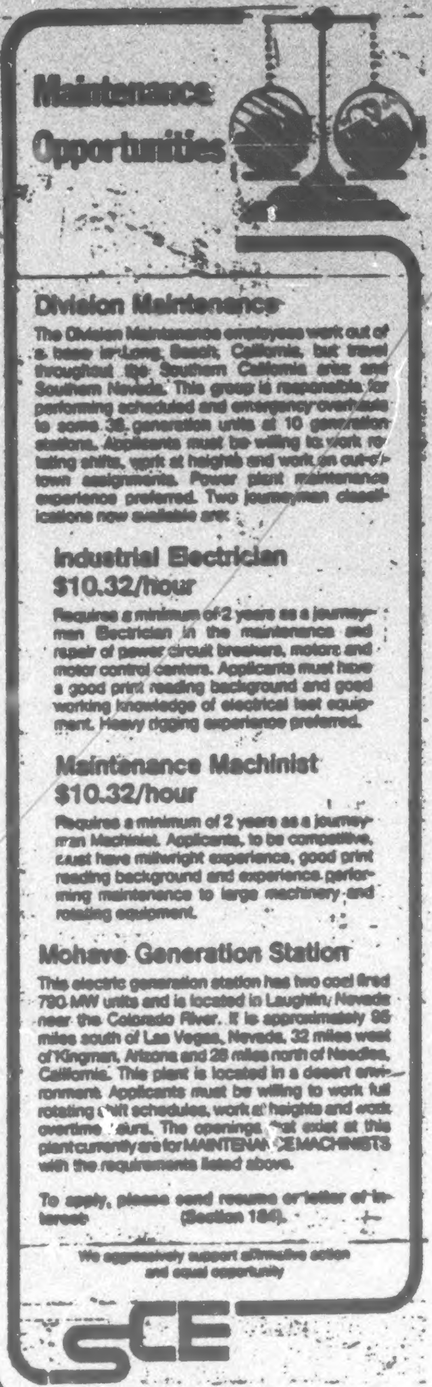
MAINTENANCE MECHANIC AND ELECTRICIAN



Maintenance Opportunities

Division Maintenance

The Division Maintenance employees work out of a base in Long Beach, California, but travel throughout the Southern California area and Southern Nevada. This group is responsible for performing scheduled and emergency overhauls to some 38 generation units at 10 generation stations. Applicants must be willing to work rotating shifts, work at heights and work on out-of-town assignments. Power plant maintenance experience preferred. Two journeyman classifications now available are:

Industrial Electrician
$10.32/hour

Requires a minimum of 2 years as a journeyman Electrician in the maintenance and repair of power circuit breakers, motors and motor control centers. Applicants must have a good print reading background and good working knowledge of electrical test equipment. Heavy rigging experience preferred.

Maintenance Machinist
$10.32/hour

Requires a minimum of 2 years as a journeyman Machinist. Applicants, to be competitive, must have millwright experience, good print reading background and experience performing maintenance to large machinery and rotating equipment.

Mohave Generation Station

This electric generation station has two coal fired 790 MW units and is located in Laughlin, Nevada near the Colorado River. It is approximately 95 miles south of Las Vegas, Nevada, 32 miles west of Kingman, Arizona and 25 miles north of Needles, California. This plant is located in a desert environment. Applicants must be willing to work full rotating shift schedules, work at heights and work overtime hours. The openings that exist at this plant currently are for MAINTENANCE MACHINISTS with the requirements listed above.

To apply, please send resume or letter of interest (Section 184).

We aggressively support affirmative action
and equal opportunity

SCE

THE ECONOMIC REALITY OF BUSINESS, INDUSTRY, AND SOCIETY DEMANDS RELIABLE POWER. OUTAGES DUE TO EQUIPMENT FAILURE ARE COSTLY BOTH TO THE COMPANY AND THE CONSUMER. MAINTENANCE MECHANICS AND ELECTRICIANS MAINTAIN ENERGY-RELATED EQUIPMENT SUCH AS PUMPS, TURBINES, GENERATORS, AND CIRCUIT BREAKERS. ROUTINE INSPECTIONS ARE CARRIED OUT TO PREVENT BREAKDOWN. MAINTENANCE TASKS SUCH AS LUBRICATION, OIL CHANGE, AND BRUSH REPLACEMENT ARE CARRIED OUT USING HAND AND POWER TOOLS. MECHANICS AND ELECTRICIANS EMPLOYED BY UTILITIES ARE OFTEN ON CALL TO RESPOND TO BREAKDOWNS. MANY OF THESE WORKERS LEARNED THEIR TRADE ON-THE-JOB. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS DESIRABLE. MOST JOBS FOR MAINTENANCE MECHANICS AND ELECTRICIANS IN NEW JERSEY ARE NOT ENERGY-RELATED.

International Brotherhood of Electrical
Workers
1125 15th Street NW
Washington, D.C. 20005

International Union of Electrical, Radio,
and Machine Workers
1126 16th Street NW
Washington, D.C. 20036

BATTERY MAINTAINER, LARGE EMERGENCY STORAGE	820.381-010
BOILERHOUSE MECHANIC	805.361-010
CIRCUIT-BREAKER MECHANIC	829.281-014
COMPLAINT INSPECTOR	829.261-010
ELECTRICAL REPAIRER	829.281-014
*ELECTRICIAN, POWERHOUSE	820.261-014
ELECTRICIAN, REFINERY	829.281-014
ELECTRICIAN, SUBSTATION	820.261-018
FUEL-SYSTEM MAINTENANCE WORKER	638.381-010
HYDROELECTRIC-MACHINERY MECHANIC	631.261-010
*MAINTENANCE MECHANIC	620.281-046
MAINTENANCE MECHANIC, COMPRESSED-GAS PLANT	630.261-010
OIL-FIELD EQUIPMENT MECHANIC	629.381-014
POWER-TRANSFORMER REPAIRER	821.361-034
POWERHOUSE MECHANIC	631.131-010
RELAY TECHNICIAN	821.261-018
SHAFT MECHANIC	899.684-034
STEAM SERVICE INSPECTOR	862.361-022
STREET-LIGHT REPAIRER	729.381-018
TRANSFORMER REPAIRER	724.381-018
WIRER, MAINTENANCE	829.281-014

COMPANY LABORER OR MAINTENANCE WORKER

MAINTENANCE HELPER

(Sunday through Thursday)

Immediate opening for person with good mechanical ability to provide support for buildings and grounds maintenance, and preventive maintenance on machinery. Must be able to work shift work.

We offer an exceptionally fine non-contributory benefits program.

Equal Opportunity Employer M/F

MAINTENANCE MANAGER!

HVAC ENGINEERS

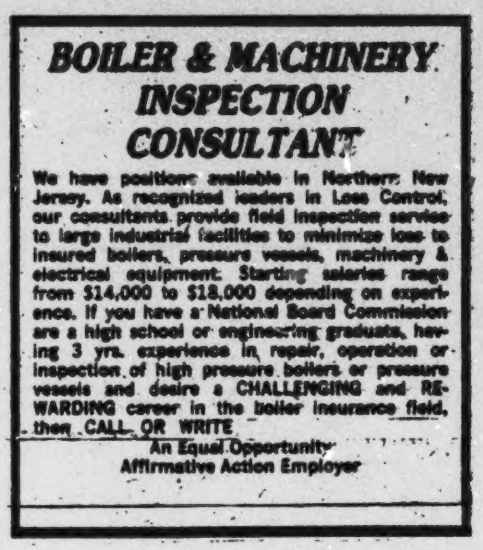
RELIABLE OPERATION OF ENERGY FACILITIES DEMANDS THAT ALL EQUIPMENT BE KEPT IN TOP SHAPE. ALTHOUGH SOME MAINTENANCE WORK DEMANDS SKILLED LABOR, MOST PLANT MAINTENANCE TASKS SUCH AS CLEANING, PAINTING, AND HAULING CAN BE PERFORMED WITH LITTLE TRAINING. SUCH WORK CAN BE DIVERSIFIED, VARYING FROM STEAM-CLEANING VALVES AND PUMPS IN POWER PLANTS TO SCRAPING AND PAINTING ABOVE-GROUND PIPELINES. MOST EMPLOYERS SEEK RELIABLE MAINTENANCE AND LABOR HELP TO PROTECT THEIR LARGE INVESTMENT IN EQUIPMENT AND FACILITIES. SUCH WORK CAN BE HAD WITH LITTLE TRAINING, BUT SUPERVISORY JOBS REQUIRE PRIOR EXPERIENCE. ADVANCEMENT TO SKILLED TRADE WORK REQUIRES TRAINING. MOST MAINTENANCE AND LABOR WORK IN NEW JERSEY IS NOT DIRECTLY RELATED TO ENERGY.

Laborers' International Union of North America
905 16th Street NW
Washington, D.C. 20006

BELT PICKER	939.687-010
BOILER ROOM HELPER	950.685-014
BOILERMAKER HELPER	805.687-010
BOTTOM-HOLE-PRESSURE-RECORDING-OPERATOR HELPER	930.687-010
BOTTOMER	932.667-010
CAGER	939.667-010

CHUTE LOADER	932.687-010
COMPANY LABORER	939.687-014
FURNACE CLEANER	891.687-014
HELPER, ELECTRICAL	821.667-010
HYDROELECTRIC-PLANT MAINTAINER	952.687-010
LABORATORY HELPER	821.564-010
LABORER	939.687-018
LABORER, ELECTROPLATING	500.686-010
LABORER, PETROLEUM REFINERY	549.687-018
LABORER, PIPE-LINES	914.687-010
LABORER, POWERHOUSE	952.665-010
LOADING-SHOVEL OILER	932.667-014
*MAINTENANCE MECHANIC HELPER	620.664-014
METER READER	209.567-010
OIL-BURNER-SERVICER AND INSTALLER HELPER	862.687-022
PIPE-FITTER HELPER	862.684-022
POWDER LOADER	931.667-010
PRODUCTION HELPER	691.687-010
ROCK-DUST SPRAYER	939.687-026
ROUSTABOUT	869.684-046
SAFETY-LAMP KEEPER	729.684-042
SAMPLE WASHER	939.687-030
SAMPLER	549.587-014
SERVICE-MECHANIC HELPER, COMPRESSED-GAS EQUIPMENT	630.664-018
SHALE PLANER OPERATOR HELPER	930.667-010
STREET-LIGHT CLEANER	952.667-010
TAILER	930.666-014
TANK CLEANER	891.687-022
TUBE CLEANER	891.687-030

INSPECTOR



BOILER & MACHINERY INSPECTION CONSULTANT

We have positions available in Northern New Jersey. As recognized leaders in Loss Control, our consultants provide field inspection service to large industrial facilities to minimize loss to insured boilers, pressure vessels, machinery & electrical equipment. Starting salaries range from $14,000 to $18,000 depending on experience. If you have a National Board Commission are a high school or engineering graduate, having 3 yrs. experience in repair, operation or inspection of high pressure boilers or pressure vessels and desire a CHALLENGING and REWARDING career in the boiler insurance field, then CALL OR WRITE

An Equal Opportunity
Affirmative Action Employer

MOST ENERGY-RELATED ACTIVITIES INVOLVE THE USE OF EQUIPMENT AND FACILITIES THAT MUST OPERATE PROPERLY IN ORDER TO INSURE SAFETY. GETTING FUEL INVOLVES THE HAZARDS OF THE MINE AND WELL. PRODUCING STEAM TO GENERATE ELECTRICITY REQUIRES HIGH-PRESSURE BOILERS AND PLUMBING. HOME USES OF ELECTRICITY AND AUTOMOBILES ARE NOT WITHOUT POSSIBLE HAZARDS. INSPECTORS ARE TRAINED TO USE QUALITY STANDARDS, INSPECTION TOOLS, AND GOOD JUDGMENT TO RECOGNIZE CONDITIONS THAT MAY REDUCE SAFETY OR EFFICIENCY. ON-THE-JOB EXPERIENCE IS GOOD TRAINING FOR INSPECTORS AND A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS DESIRABLE FOR JOB ENTRY. THE NEED FOR INSPECTORS IN NEW JERSEY SHOULD FOLLOW ENERGY CONSUMPTION PATTERNS.

American Society of Quality Control
161 West Wisconsin Avenue
Milwaukee, WI 53203

AUTOMOBILE TESTER	379.364-010
BOILERHOUSE INSPECTOR	805.667-010
CARGO INSPECTOR	549.387-010
CONSTRUCTION-AND-MAINTENANCE INSPECTOR	914.362-014
CYLINDER INSPECTOR-AND-TESTER	953.387-010
HOUSE-PIPING INSPECTOR	953.367-018
*INSPECTOR, BOILER	168.167-026
INSPECTOR, ELECTRICAL	168.167-034
INSPECTOR, EXHAUST EMISSIONS	806.364-010
INSPECTOR, HEATING AND REFRIGERATION	168.167-046

INSPECTOR, INDUSTRIAL WASTE	168.267-054
INSPECTOR, INSULATION	691.387-010
INSPECTOR, MOTOR VEHICLES	168.267-058
INSPECTOR, WIRE	691.367-010
MECHANICAL INSPECTOR	549.261.010
MINE INSPECTOR	168.267-074
OIL-PIPE INSPECTOR	930.267-010
PIPE-LINE-CONSTRUCTION INSPECTOR	869.367-018
SAFETY INSPECTOR	821.367-014
SUBSTATION INSPECTOR	952.261-010
TESTER, COMPRESSED GASES	549.364-010
THREAD INSPECTOR	862.381-038
ULTRASONIC TESTER	709.687-054

LINE WORKER

MOST PEOPLE THINK THAT THE POWER PLANT OR REFINERY IS THE MOST IMPORTANT FACILITY OWNED BY A UTILITY. ACTUALLY, POWER TRANSMISSION LINES AND PIPELINES ARE FAR MORE EXTENSIVE AND THEIR INSTALLATION, MAINTENANCE, AND REPAIR EMPLOYS MOST PEOPLE WORKING FOR THE UTILITY. BOTH LONG-DISTANCE, HIGH VOLTAGE TRANSMISSION LINES AND THE LOCAL POWER GRID MUST BE INSTALLED BY LINE WORKERS. INSPECTION AND RIGHT-OF-WAY CLEARING ARE PART OF MAINTENANCE. REPAIR WORKERS ARE ON CALL TO COPE WITH EMERGENCIES. PIPELINE WORKERS USE DIFFERENT SKILLS BUT HAVE SIMILAR RESPONSIBILITIES. EXTENSIVE ON-THE-JOB EXPERIENCE AND SOMETIMES APPRENTICESHIP PROGRAMS SERVE TO TRAIN LINE WORKERS. NEW JERSEY'S DEMAND FOR ELECTRICITY AND GAS SHOULD PROVIDE CONTINUED EMPLOYMENT FOR LINE WORKERS.

Edison Electric Institute
90 Park Avenue
New York, NY 10016

American Petroleum Institute
2101 L Street NW.
Washington, D.C. 20037

CABLE INSTALLER-REPAIRER	821.361-010
CABLE MAINTAINER	952.464-010
CABLE SPLICER	829.361-010
CONSTRUCTION CHECKER	821.367-010
CORROSION-CONTROL FITTER	820.361-010
DRIP PUMPER	953.583-010
ELECTRIC POWERLINE EXAMINER	959.367-010
LINE ERECTOR	821.361-018
LINE MAINTAINER	821.261-014
LINE REPAIRER	821.361-026
LINE WALKER	869.564-010
PIPELINER	899.684-026
POLE FRAMER	959.684-010
POLE INSPECTOR	869.387-010
TOWER ERECTOR	821.361-038
TREE TRIMMER	408.664-010

MINING EQUIPMENT OPERATOR

TODAY, BOTH UNDERGROUND MINING AND STRIP MINING DEPEND UPON THE USE OF SPECIALIZED, HEAVY EQUIPMENT. UNDERGROUND MINERS OPERATE POWERFUL, COMPACT MACHINERY TO REMOVE, LOAD, AND TRANSPORT COAL TO THE SURFACE. SURFACE MINERS OPERATE HUGE EQUIPMENT DESIGNED TO MOVE BOTH OVERBURDEN AND COAL. INCREASING DEMAND FOR COAL SHOULD CREATE MANY OPENINGS FOR MINING EQUIPMENT OPERATORS. STRIP MINING IS EXPECTED TO INCREASE IN WESTERN STATES. UNDERGROUND MINING, WHICH IS MORE LABOR INTENSIVE, IS EXPECTED TO INCREASE IN THE EAST. BECAUSE OF THE ABSENCE OF KNOWN COAL RESERVES, THERE WILL BE NO COAL MINING EMPLOYMENT IN NEW JERSEY IN THE NEAR FUTURE.

United Mine Workers of America
900 15th Street NW
Washington, D.C. 20005

National Coal Association
1130 17th Street NW
Washington, D.C. 20036

AERIAL-TRAM OPERATOR	932.685-010
BLASTER	931.261-010
CAR DROPPER	932.683-010
COAL WASHER	541.382-010
CONE OPERATOR	934.685-010
CONTINUOUS-MINING-MACHINE OPERATOR	930.683-010
CUTTER OPERATOR	930.683-014

DRIER OPERATOR	543.682-014
DRILLER, MACHINE	930.382-010
DRILLING-MACHINE OPERATOR	930.482-010
HEAVY-MEDIA OPERATOR	541.685-010
HOIST OPERATOR	921.663-026
JACK SETTER	939.684-010
JACKHAMMER OPERATOR	930.684-018
LOADING-MACHINE OPERATOR	932.683-014
LONG-WALL-MINING-MACHINE TENDER	930.665-010
MECHANICAL-SHOVEL OPERATOR	932.683-018
MINER	939.281-010
ROOF BOLTER	930.683-026
SCRAPER-LOADER OPERATOR	921.663-050
SHUTTLE-CAR OPERATOR	932.683-022
TIER-AND-DETONATOR	931.664-010

PUMPING AND PIPELINE OPERATOR

LIQUID AND GASEOUS PETROLEUM PRODUCTS SUCH AS CRUDE OIL, GASOLINE, AND NATURAL GAS ARE OFTEN DELIVERED FROM STORAGE LOCATIONS TO LOCAL DISTRIBUTORS OR CUSTOMERS THROUGH PIPELINES. A DISPATCHER SCHEDULES THE PIPELINE DELIVERY AND DIRECTS THE MOVEMENT OF FUEL THROUGH THE SYSTEM. A GAGER MEASURES THE OIL OR GAS IN STORAGE TANKS AND REGULATES ITS FLOW IN THE PIPELINE. A GASMAN CONTROLS EQUIPMENT THAT PREPARES NATURAL GAS FOR PIPELINE TRANSPORTATION. THESE WORKERS ALL HAVE HELPERS THAT ARE GAINING THE ON-THE-JOB EXPERIENCE REQUIRED FOR ADVANCEMENT. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS DESIRABLE FOR EMPLOYMENT AS A HELPER. PIPELINE AUTOMATION AND THE LACK OF CRUDE OIL OR NATURAL GAS WELLS REDUCE NEW JERSEY'S EMPLOYMENT OPPORTUNITIES FOR PUMPING AND PIPELINE OPERATORS.

National Petroleum Refiners Association
Suite 802
1725 DeSales Street NW
Washington, D.C. 20036

COAL-PIPELINE OPERATOR	914.362-010
CRUDE-OIL TREATER	541.382-014
GAGER	914.384-010
GAS-PUMPING-STATION OPERATOR	953.382-010
NATURAL-GAS-TREATING-UNIT OPERATOR	549.382-010
OIL PUMPER	914.382-010
PRESSURE CONTROLLER	953.362-018
PUMPER	549.360-010
PUMPER, HEAD	914.382-022
STATION ENGINEER, MAIN LINE	914.362-018

REFINERY OPERATOR

REFINERY MANAGERS

Key new openings for managers with high potential. Promotional opportunities in 1979 by virtue of company growth and expansion.

TECHNICAL MANAGER

OPERATIONS MANAGER

Both of these positions are for fast track persons who in the near future want to be refinery managers.

Initially you will work with the overall management of our technical or operations area. This exposure coupled with your previous refinery experience will ready you for new assignments.

Your background should include a BS degree in engineering, chemical or mechanical major preferred. In addition 7 years or more of technical and operations experience in a refinery is required. Supervisory experience is necessary.

For further information send resume in confidence

An Equal Opportunity Employer M/F

USING CRUDE OIL IN AUTOS OR POWER PLANTS IS AS IMPOSSIBLE AS USING IRON ORE TO BUILD BRIDGES. REFINERIES ARE DESIGNED TO SEPARATE CRUDE OIL INTO PRODUCTS SUCH AS GASOLINE, HEATING OIL, HEAVY OILS, AND INDUSTRIAL GASSES. THE REFINERY OPERATOR CONTROLS THESE SEPARATIONS FROM A CENTRAL PANEL, MONITORING AND CHANGING SUCH THINGS AS TEMPERATURE, PRESSURE, AND FLOW. LARGE REFINERIES ARE HIGHLY AUTOMATED, BUT SMALLER REFINERIES REQUIRE MORE OPERATORS TO SEPARATELY CONTROL EACH PROCESS. NEW EMPLOYEES SHOULD HAVE A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA. TRAINING CONSISTS OF ON-THE-JOB SUPERVISION AND OPERATOR COURSES. THE INCREASING AUTOMATION USED IN REFINERIES AND THE LACK OF NEW REFINERY SITES IN NEW JERSEY WILL LIMIT JOB OPPORTUNITIES FOR REFINERY OPERATORS.

National Petroleum Refiners Association
Suite 802
1725 DeSales Street NW
Washington, D.C. 20036

BLENDER	540.462-010
COMPOUNDER	540.382-010
CONTROL-PANEL OPERATOR	546.382-010

FURNACE OPERATOR	542.562-010
GREASE MAKER	549.132-010
LEAD RECOVERER	541.685-014
LIQUEFACTION-AND-REGASIFICATION-PLANT OPERATOR	953.362-014
OIL-RECOVERY - UNIT OPERATOR	549.382-014
PARAFFIN-PLANT OPERATOR	541.682-010
PARAFFIN-PLANT-SWEATER OPERATOR	543.682.022
PUMPER	549.360-010
PUMPER-GAGER	914.382-014
*REFINERY OPERATOR	549.260-010
STIPP-PUMP OPERATOR	549.362-010
TREATER	549.362-014

WELL EQUIPMENT OPERATOR

FINDING NEW OIL AND GAS IS A GROWING CHALLENGE. WELLS MUST BE DRILLED DEEPER, USING NEW TECHNOLOGY BOTH ON-LAND AND OFF-SHORE. DRILLING RIGS ARE BUILT BY LARGE OIL COMPANIES USING INDEPENDENT CONTRACTORS. THESE RIGS ARE GENERALLY OPERATED BY CREWS WORKING FOR THE CONTRACTOR. WELL CREW WORK GENERALLY BEGINS WITH EMPLOYMENT AS A ROUSTABOUT, OR GENERAL LABORER. WITH GOOD WORK, A ROUSTABOUT SOON BECOMES A ROUGHNECK, OR DRILL HELPER. FROM THERE, CAREER ADVANCEMENT MIGHT LEAD THROUGH OPERATOR JOBS TO TOOL PUSHER, OR DRILLING SUPERVISOR. MOST WELL CREW TRAINING IS ON-THE-JOB. A HIGH SCHOOL OR VOCATIONAL SCHOOL DIPLOMA IS DESIRABLE. CURRENT FAILURE TO FIND SIGNIFICANT GAS OR OIL OFF THE NEW JERSEY COAST LIMITS LOCAL EMPLOYMENT FOR WELL CREW WORKERS.

Society of Petroleum Engineers of AIME
6200 N. Central Expressway
Dallas, Texas 75206

CASER	930.664-010
CLEAN-OUT DRILLER	930.363-010
DERRICK WORKER, WELL SERVICE	930.683-018
DUMPER-BAILER OPERATOR	931.684-010
FISHING-TOOL TECHNICIAN OIL WELL	930.261-010
FLOOR WORKER, WELL SERVICE	930.684-014
FORMATION-TESTING OPERATOR	930.261-014
GUN-PERFORATOR LOADER	931.384-014
HOIST OPERATOR	932.363-010

MUD-PLANT OPERATOR	930.685-010
OIL-WELL-SERVICE OPERATOR	939.462-010
PERFORATOR OPERATOR, OIL WELL	931.382-010
PIPE TESTER	930.382-014
PNEUMATIC-JACK OPERATOR	939.682-014
PROSPECTING DRILLER	930.382-018
ROTARY DERRICK OPERATOR	930.382-022
ROTARY DRILLER	930.382-026
ROTARY-RIG ENGINE OPERATOR	950.382-022
SAMPLE-TAKER OPERATOR	931.361 010
SERVICE-UNIT OPERATOR, OIL WELL	930.361-010
SHOOTER	931.361.014
TANK SETTER	801.361-022
TECHNICAL OPERATOR	930.167-010
WELL-LOGGING OPERATOR, MUD ANALYSIS	010.281-022
WELL PULLER	930.382-030

GENERAL EQUIPMENT OPERATOR

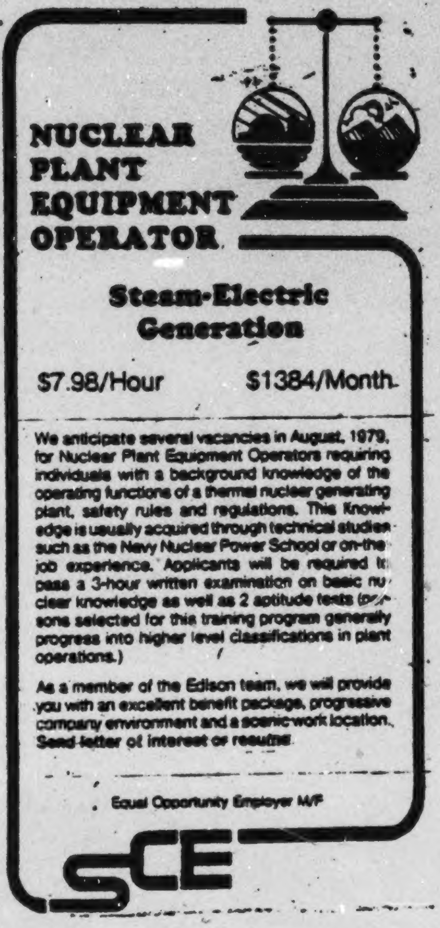
RAPID GROWTH IN ENERGY-RELATED ACTIVITES HAS BEEN MET BY INCREASING NUMBERS OF HIGHLY PRODUCTIVE WORKERS. THIS PRODUCTIVITY IS DUE TO THE USE OF POWER EQUIPMENT ON THE JOB. THE CONSTRUCTION OF ENERGY FACILITIES TAKES LESS LABORERS BECAUSE OF MACHINES THAT LIFT, CARRY, AND DIG. PIPELINES AND TRANSMISSION LINES ARE RAPIDLY BUILT USING SPECIALIZED EQUIPMENT. MAINTENANCE OF POWER PLANTS, REFINERIES, STORAGE FACILITIES, PIPELINES, AND ELECTRIC TRANSMISSION LINES DEPENDS UPON MOBILE CREWS USING POWER-TRUCKS FOR BORING, LIFTING, AND CARRYING. EQUIPMENT OPERATORS GENERALLY LEARN ON-THE-JOB. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS DESIRABLE. THE WIDESPREAD USE OF POWER EQUIPMENT AND NEW JERSEY DENSE INDUSTRY AND POPULATION SHOULD CREATE CONTINUED EMPLOYMENT OPPORTUNITIES FOR EQUIPMENT OPERATORS.

International Union of Operating Engineers
1125 17th Street NW
Washington, D.C. 20036

CHARGE-MARINE OPERATOR	921.662-014
COAL EQUIPMENT OPERATOR	921.683-022
COMPRESSED GAS PLANT WORKER	549.587-010
CORE-DRILL OPERATOR	930.682-010
EARTH-BORING-MACHINE OPERATOR	859.682-010
FIRER, HIGH PRESSURE	951.685-010
FUEL-HOUSE ATTENDANT	951.686-010
GAS-TRANSFER OPERATOR	914.585-010

INDUSTRIAL-TRUCK OPERATOR	921.683-050
IRRADIATED-FUEL HANDLER	921.663-034
MILL-AND-COAL TRANSPORT OPERATOR	544.665-010
PIPE LAYER	869.664-014
PIPE-MACHINE OPERATOR	869.687-026
PIPE-WRAPPING-MACHINE OPERATOR	862.682-014
STEEL-POST-INSTALLER	821.687-010
VENTILATION EQUIPMENT TENDER	950.585-010

STATIONARY ENGINEER



NUCLEAR PLANT EQUIPMENT OPERATOR

Steam-Electric Generation

$7.98/Hour $1384/Month

We anticipate several vacancies in August, 1979, for Nuclear Plant Equipment Operators requiring individuals with a background knowledge of the operating functions of a thermal nuclear generating plant, safety rules and regulations. This Knowledge is usually acquired through technical studies such as the Navy Nuclear Power School or on-the-job experience. Applicants will be required to pass a 3-hour written examination on basic nuclear knowledge as well as 2 aptitude tests (persons selected for this training program generally progress into higher level classifications in plant operations.)

As a member of the Edison team, we will provide you with an excellent benefit package, progressive company environment and a scenic work location. Send letter of interest or resume.

Equal Opportunity Employer M/F

SCE

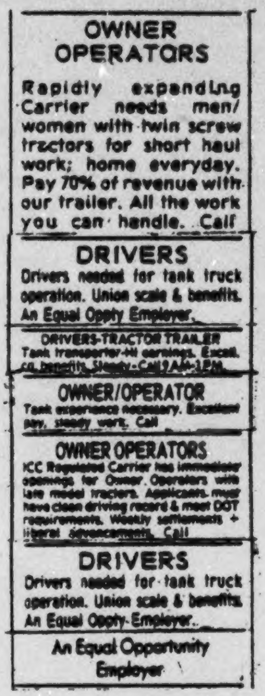
POWER MUST BE GENERATED IN MANY PLACES: COMMERCIAL POWER PLANTS, INDUSTRIAL POWER HOUSES, LARGE APARTMENT COMPLEXES, HOSPITALS, UNIVERSITIES, AND OFFICE BUILDINGS. HERE ONE CAN FIND GENERATORS, TURBINES, COMPRESSORS, PUMPS, BOILERS, DIESEL ENGINES, AND THE PEOPLE THAT OPERATE THEM--STATIONARY ENGINEERS. STATIONARY ENGINEERS MONITOR METERS AND GAUGES AND ADJUST THE FUEL RATE OR STEAM PRESSURE. THEY ALSO MAY PERFORM ROUTINE MAINTENANCE CHECKS, MAKING MINOR REPAIRS IF NECESSARY. THE FUEL EFFICIENCY OF THE UNIT DEPENDS, IN PART, UPON HOW WELL THE STATIONARY ENGINEER PERFORMS THESE TASKS. ON-THE-JOB TRAINING HAS BEEN USED, BUT THE INCREASING COMPLEXITY OF POWER UNITS TODAY ARE BRINGING ABOUT APPRENTICESHIP TRAINING. EMPLOYMENT OPPORTUNITIES IN NEW JERSEY WILL BE LIMITED TO REPLACEMENT OF THOSE WHO LEAVE THE JOB.

International Union of Operating
Engineers
1125 17th Street NW
Washington, D.C. 20036

National Association of Power
Engineers, Inc.
176 West Adams Street
Chicago, Illinois 60603

AUXILIARY - EQUIPMENT OPERATOR	952.362-010
BOILER OPERATOR	950.382-010
DIESEL - PLANT OPERATOR	952.382-010
FEEDER - SWITCHBOARD OPERATOR	952.362-014
FIRER, LOW PRESSURE	951.685-014
FIRER, MARINE	951.685-018
FRONT-END LOADER OPERATOR	921.683-042
FUEL ATTENDANT	953.362-010
GAS - COMPRESSOR OPERATOR	950.382-014
GAS DISPATCHER	953.167-010
GAS - ENGINE OPERATOR	950.382-018
GAS-PUMPING - STATION OPERATOR	953.382-010
HYDROELECTRIC - STATION OPERATOR	952.362-018
MOTOR-ROOM CONTROLLER	820.662-010
PANELBOARD OPERATOR	939.362-014
PANELBOARD OPERATOR	950.562-010
*POWER-PLANT OPERATOR	952.382-018
POWER-REACTOR OPERATOR	952.362-022
REFRIGERATING ENGINEER	950.362-014
STATIONARY ENGINEER	950.382-026
SUBSTATION OPERATOR	952.362-026
SWITCHBOARD OPERATOR	952.362-034
SWITCHBOARD OPERATOR	952.362-038
TURBINE ATTENDANT	952.567-010
TURBINE OPERATOR	952.362-042

TRUCKDRIVER



OWNER OPERATORS

Rapidly expanding Carrier needs men/women with twin screw tractors for short haul work; home everyday. Pay 70% of revenue with our trailer. All the work you can handle. Call

DRIVERS

Drivers needed for tank truck operation. Union scale & benefits. An Equal Oppty Employer.

DRIVERS-TRACTOR TRAILER

Tank transporter-Hi earnings. Excell. co. benefits. Steady. Call 9 AM-1PM.

OWNER/OPERATOR

Tank experience necessary. Excellent pay, steady work. Call

OWNER OPERATORS

ICC Regulated Carrier has immediate openings for Owner. Operators with late model tractors. Applicants must have clean driving record & meet DOT requirements. Weekly settlements + liberal advancements. Call

DRIVERS

Drivers needed for tank truck operation. Union scale & benefits. An Equal Oppty Employer.

An Equal Opportunity Employer

MOST GASOLINE BURNED IN AUTOS AND FUEL OIL BURNED IN HOMES REACHES ITS DESTINATION FROM THE REFINERY BY TRUCK. LONG-HAUL ROUTES FOR FUEL OIL ARE USUALLY DRIVEN BY EMPLOYEES OF THE DISTRIBUTOR. THESE DRIVERS MUST HAVE SKILL IN OPERATING A TRACTOR-TRAILER. LOCAL DISTRIBUTION OF FUEL OIL AND BOTTLED GAS IS DONE WITH SMALLER TRUCKS OPERATED BY THE DISTRIBUTOR. TRUCKDRIVERS NEED KNOWLEDGE OF THEIR ROUTES AND MUST OPERATE PUMPS OR TAILGATE LIFTS. EXPERIENCE IS GAINED BY FIRST WORKING WITH LIGHT TRUCKS, ALTHOUGH PRIVATE TRUCKING SCHOOLS OFFER COURSES. MOST TRUCKING EMPLOYMENT IN NEW JERSEY IS NOT DIRECTLY RELATED TO ENERGY.

American Trucking Associations, Inc.
1616 P Street NW
Washington, D.C. 20036

DUMP-TRUCK DRIVER	902.683-010
TANK-TRUCK DRIVER	903.683-018
TRACTOR-TRAILER-TRUCK DRIVER	904.383-010

RECEPTIONIST

RECEPTIONIST

EXECUTIVE

Receptionist/Typist

ATTRACTIVE SALARY

OUTSTANDING BENEFITS

3 WEEKS PAID VACATION after one year

RECEPTIONIST

MUSTS.

RECEPTIONIST

To $9,100

FOR OUR IMPORTANT, BUSY FRONT DESK...

We seek someone who has good people skills (heavy client contact on phones & in person) & who enjoys diversity. Good typing also a must. Excellent midtown location, and a unique office environment...

If you'd like more information on joining "our family," PLEASE CALL MRS. GREIFF,

Receptionist

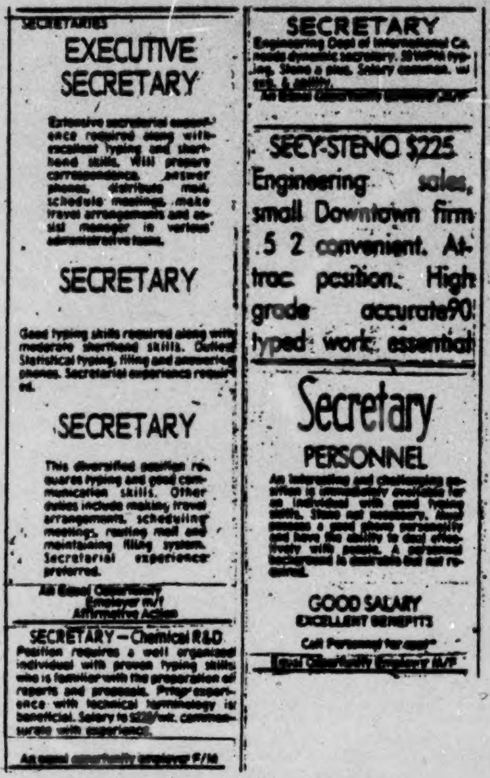
$200. WEEKLY

DAY-TO-DAY DEALINGS BETWEEN THE PUBLIC AND ENERGY BUSINESSES USUALLY TAKE PLACE THROUGH A RECEPTIONIST. RECEPTIONISTS TAKE INCOMING CALLS, SOMETIMES NOTING CALLER INFORMATION, THEN SWITCHING THE CALL TO THE RIGHT EXTENSION. VISITORS ARE OFTEN GREETED BY A RECEPTIONIST WHO ASSURES THAT THEY MEET THEIR FIRST APPOINTMENT. IN SMALLER BUSINESSES, RECEPTIONISTS MAY TYPE, FILE, OR SORT INCOMING MAIL. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS GENERALLY REQUIRED FOR WORK AS A RECEPTIONIST. MOST RECEPTIONISTS DO NOT WORK FOR ENERGY-RELATED BUSINESSES, BUT MOST WHO DO ARE EMPLOYED BY PUBLIC UTILITIES. NEW JERSEY SHOULD PROVIDE CONTINUED EMPLOYMENT FOR THESE RECEPTIONISTS.

National Secretaries Association (International)
2440 Pershing Road, Suite G10
Kansas City, Missouri 64108

APPOINTMENT CLERK	237.367-010
INFORMATION CLERK	237.367-022
RECEPTIONIST	237.367-038
REFERRAL-AND-INFORMATION AIDE	237.367-050

SECRETARY



SECRETARIES

EXECUTIVE SECRETARY

Extensive secretarial experience required along with excellent typing and shorthand skills. Will prepare correspondence, answer phones, distribute mail, schedule meetings, make travel arrangements and assist manager in various administrative tasks.

SECRETARY

Good typing skills required along with moderate shorthand skills. Duties: Statistical typing, filing and answering phones. Secretarial experience required.

SECRETARY

This diversified position requires typing and good communication skills. Other duties include making travel arrangements, scheduling meetings, routing mail and maintaining filing system. Secretarial experience preferred.

An Equal Opportunity Employer m/f Affirmative Action

SECRETARY—Chemical R&D

Position requires a well organized individual with proven typing skills who is familiar with the preparation of reports and proposals. Prior experience with technical terminology is beneficial.

SECRETARY

SECY-STENO $225

Engineering sales, small Downtown firm .5 2 convenient. Attrac position. High grade accurate90! typed work essential

Secretary

PERSONNEL

GOOD SALARY

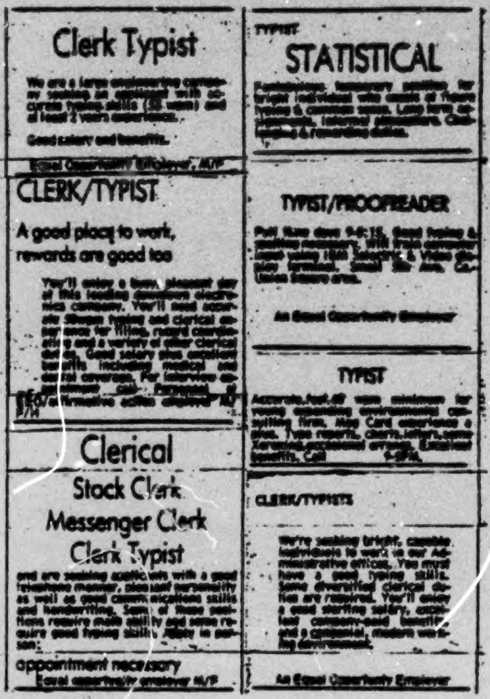
EXCELLENT BENEFITS

THE MOVEMENT OF INFORMATION IN A FIRM'S BUSINESS OFFICE IS THE CONCERN OF SECRETARIES. ALL ENERGY-RELATED BUSINESSES AND INDUSTRIES USE SECRETARIAL SERVICES. SECRETARIES OFTEN PERFORM MANY DUTIES, TAKING DICTATION, TYPING LETTERS AND REPORTS, ANSWERING PHONES, AND ACTING AS RECEPTIONIST. IN SMALLER FIRMS, SECRETARIES OFTEN TAKEN ON ADDITIONAL RESPONSIBILITIES SUCH AS FILING AND WRITING REPORTS. IN LARGER FIRMS, JOB RESPONSIBILITIES ARE OFTEN MORE NARROW. HERE A SECRETARY MAY SPECIALIZE IN ONLY ONE OR TWO OF THE ABOVE AREAS. PART-TIME WORK IS OFTEN AVAILABLE FOR SECRETARIES. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS REQUIRED FOR MOST SECRETARIAL POSITIONS. MOST SECRETARIES IN NEW JERSEY DO NOT WORK FOR ENERGY-RELATED BUSINESSES.

National Secretaries Association
(International)
2440 Pershing Road, Suite G10
Kansas City, Missouri 64108

ADMINISTRATIVE SECRETARY	169.167-014
CLERK-TYPIST	203.362-010
SECRETARY	201.362-030

TYPIST/ STENOGRAPHER



Clerk Typist

Good salary and benefits.

CLERK/TYPIST

A good place to work, rewards are good too

Clerical

Stock Clerk

Messenger Clerk

Clerk Typist

appointment necessary

TYPIST

STATISTICAL

TYPIST/PROOFREADER

An Equal Opportunity Employer

TYPIST

CLERK/TYPISTS

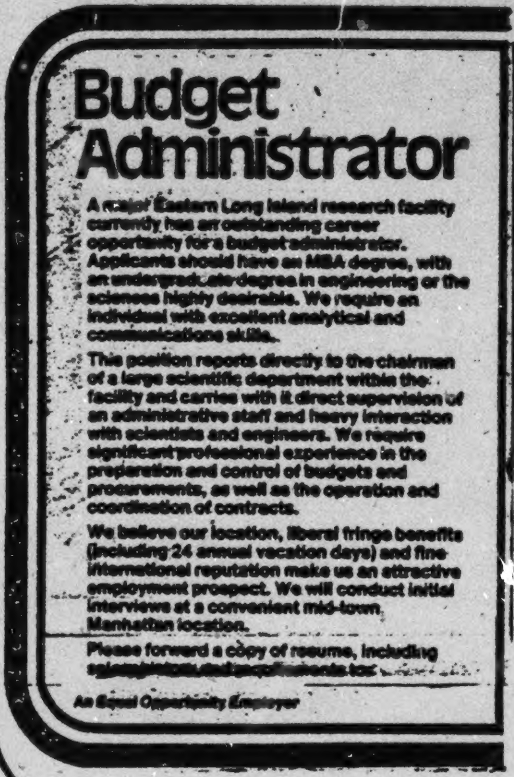
An Equal Opportunity Employer

MANY RESEARCH ORGANIZATIONS AND GOVERNMENT AGENCIES PRODUCE TECHNICAL OR ECONOMIC REPORTS RELATING TO ENERGY. THESE REPORTS ARE TYPED IN DRAFT FORM, REVISED, THEN TYPED AGAIN IN FINAL FORM BEFORE PRINTING. THESE REPORTS OFTEN INCLUDE REFERENCES, TABLES, FIGURES, AND BIBLIOGRAPHIES WHICH MUST BE TYPED ACCORDING TO A STRICT FORMAT. STENOGRAPHERS TAKE DICTATION OR TYPE FROM TAPES OF LETTERS OR MEMOS. SOME TYPISTS SPECIALIZE IN COMPUTER KEYPUNCHING. TYPISTS AND STENOGRAPHERS GENERALLY NEED A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA FOR EMPLOYMENT. VERY FEW OF ALL TYPISTS WORK EXCLUSIVELY ON ENERGY-RELATED WORK. THEIR NUMBERS WILL INCREASE IN NEW JERSEY AS TECHNICAL REPORTING INCREASES AND YEAR-END SHIPMENT REPORTS BECOME LEGAL REQUIREMENTS.

National Secretaries Association (International)
2440 Pershing Road, Suite G10
Kansas City, Missouri 64108

CLERK-TYPIST	203.362-010
DATA TYPIST	203.582-022
KEYPUNCH OPERATOR	203.502-030
STENOGRAPHER	202.362-014
TYPIST	203.582-066

BUDGET AND MANAGEMENT ACCOUNTANT



Budget Administrator

A major Eastern Long Island research facility currently has an outstanding career opportunity for a budget administrator. Applicants should have an MBA degree, with an undergraduate degree in engineering or the sciences highly desirable. We require an individual with excellent analytical and communications skills.

This position reports directly to the chairman of a large scientific department within the facility and carries with it direct supervision of an administrative staff and heavy interaction with scientists and engineers. We require significant professional experience in the preparation and control of budgets and procurements, as well as the operation and coordination of contracts.

We believe our location, liberal fringe benefits (including 24 annual vacation days) and fine international reputation make us an attractive employment prospect. We will conduct initial interviews at a convenient mid-town Manhattan location.

Please forward a copy of resume, including salary history and requirements to:

An Equal Opportunity Employer

POLICY DECISIONS MADE BY OFFICIALS OF ENERGY-RELATED INDUSTRIES DEPEND, IN PART, UPON ADVICE GIVEN BY BUDGET AND MANAGEMENT ACCOUNTANTS. MANY MANAGEMENT ACCOUNTANTS PERFORM INTERNAL AUDITS, EXAMINING THE INDUSTRY RECORDS AND MAKING SUGGESTIONS TO IMPROVE EFFICIENCY OR ECONOMY. OTHER MANAGEMENT ACCOUNTANTS SPECIALIZE IN BUDGETING, INVESTMENTS, OR TAXATION. MANAGEMENT ACCOUNTANTS OFTEN USE COMPUTERS TO ANALYZE LARGE AMOUNTS OF DATA. TRAINING IN ACCOUNTING MAY BE HAD AT COLLEGES, BUSINESS SCHOOLS, AND THROUGH CORRESPONDENCE. MANY EMPLOYERS PREFER TO HIRE PEOPLE WITH A MASTERS' DEGREE. MOST BUDGET AND MANAGEMENT ACCOUNTANTS IN NEW JERSEY DO NOT WORK IN ENERGY-RELATED INDUSTRIES.

NATIONAL Association of Accountants
913 Third Avenue
New York, New York 10022

Institute of Internal Auditors
249 Maitland Avenue
Altamonte Springs, Florida 32701

ACCOUNTANT	160.167-010
*ACCOUNTANT, BUDGET	160.167-014
ACCOUNTANT, COST	160.167-018
AUDITOR, INTERNAL	160.167-034
BUDGET OFFICER	161.117-010
DIRECTOR, UTILITY ACCOUNTS	160.264-014

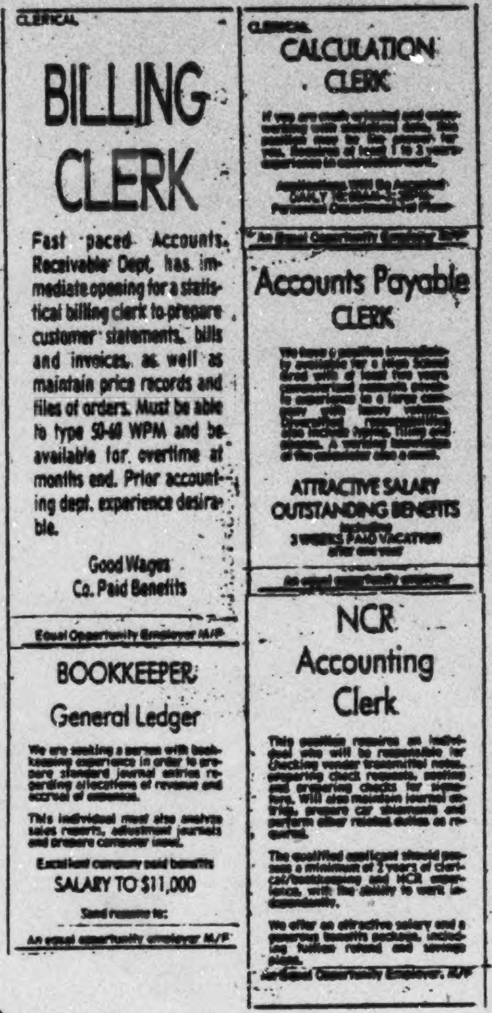
FILE CLERK

THE EFFICIENCY OF ANY BUSINESS DEPENDS UPON AN ORDERLY ORGANIZATION OF INFORMATION. THIS IS TRUE FOR ENERGY INDUSTRIES AS WELL AS FOR OTHERS. RECORDS OF CUSTOMER TRANSACTIONS MUST BE KEPT BY UTILITY COMPANIES. THE FLOW OF OIL AND GAS THROUGH REFINERIES AND PIPELINES MUST BE CAREFULLY RECORDED AND ORGANIZED FOR REFERENCE. FILE CLERKS FOR SMALL COMPANIES OFTEN TAKE ON MANY OTHER OFFICE RESPONSIBILITIES. THOSE WORKING FOR LARGE INDUSTRIES WILL MOST LIKELY OPERATE MECHANIZED FILES OR ELECTRONIC EQUIPMENT AND SPECIALIZE ONLY IN FILING TASKS. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS REQUIRED TO BEGIN AS A FILE CLERK. MANY COMPANIES ALLOW ON-THE-JOB TIME FOR TRAINING. MOST FILE CLERKS IN NEW JERSEY DO NOT WORK FOR ENERGY-RELATED BUSINESSES.

United Business Schools Association
1730 M Street NW
Washington, D.C. 20036

ACCOUNT-INFORMATION CLERK	210.367-010
BILLING-CONTROL CLERK	214.387-010
CHART CALCULATOR	214.487-010
CONTACT CLERK	209.387-018
CUSTOMER-COMPLAINT CLERK	241.367-014
CUSTOMER-SERVICE REPRESENTATIVE	239.367-010
DEPOSIT CLERK	241.267-026
FIELD RECORDER	229.367-010
GAS-DISTRIBUTION-AND-EMERGENCY CLERK	249.367-042
HISTORY-CARD CLERK	209.587-022
POSTING CLERK	216.587-014
RELAY-RECORD CLERK	221.367-054
TRANSFORMER-STOCK CLERK	222.587-054
WORK-ORDER-SORTING CLERK	221.367-082

STATISTICAL CLERK



CLERICAL

BILLING CLERK

Fast paced Accounts Receivable Dept. has immediate opening for a statistical billing clerk to prepare customer statements, bills and invoices, as well as maintain price records and files of orders. Must be able to type 50-60 WPM and be available for overtime at months end. Prior accounting dept. experience desirable.

Good Wages
Co. Paid Benefits

Equal Opportunity Employer M/F

BOOKKEEPER

General Ledger

Excellent company paid benefits
SALARY TO $11,000

Send resume to:

An equal opportunity employer M/F

CLERICAL

CALCULATION CLERK

An Equal Opportunity Employer M/F

Accounts Payable CLERK

ATTRACTIVE SALARY
OUTSTANDING BENEFITS
including
3 WEEKS PAID VACATION
after one year

An equal opportunity employer

NCR Accounting Clerk

An Equal Opportunity Employer, M/F

A COMPANY'S NUMERICAL RECORDS ARE IMPORTANT TO MANAGEMENT ACCOUNTANTS AND OFFICIALS IN HELPING THEM TO MAKE POLICY DECISIONS. THESE RECORDS ARE COMPILED AND KEPT BY STATISTICAL CLERKS. A WIDE VARIETY OF JOBS ARE HANDLED BY STATISTICAL CLERKS. INCLUDED ARE RECORDING DATA, COMPILING AND CODING STATISTICS, COMPUTING AND TABULATING, AND AND SCHEDULING. CLERKS WORKING FOR SMALL COMPANIES MAY DO ALL OF THE ABOVE IN ADDITION TO OTHER OFFICE TASKS. THOSE WORKING FOR LARGER BUSINESSES MAY SPECIALIZE IN ONE TYPE OF ACTIVITY, OFTEN USING ELECTRONIC OFFICE MACHINES OR COMPUTERS. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL SCHOOL DIPLOMA IS REQUIRED TO BEGIN AS A CLERK. MOST STATISTICAL CLERKS IN NEW JERSEY DO NOT WORK FOR ENERGY-RELATED BUSINESSES.

United Business Schools Association
1730 M Street NW
Washington, D.C. 20036

210

ACCOUNTING CLERK	216.482-010
ADMINISTRATIVE CLERK	219.362.010
BUDGET CLERK	216.382-022
COST CLERK	216.382-034
DEPOSIT-REFUND CLERK	214.482-014
DISTRIBUTION-ACCOUNTING CLERK	210.362-010
EXTENSION CLERK	219.362-030
FIXED-CAPITAL CLERK	210.382-042
STATISTICAL CLERK	216.382-062
TELLER	211.462-034

ADVERTISING WORKER

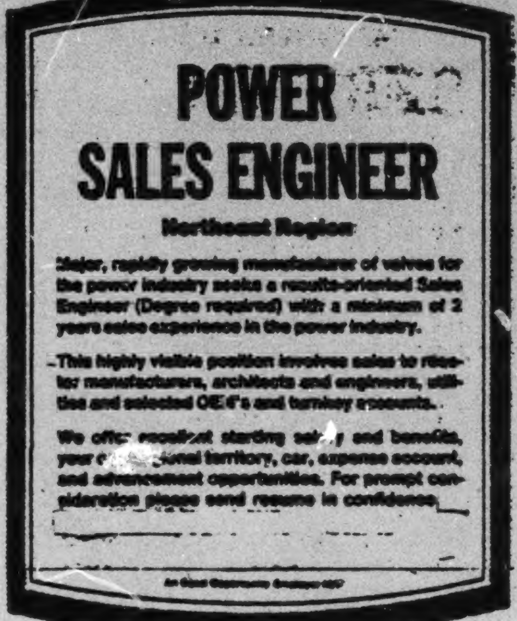
ALMOST EVERY BUSINESS ADVERTISES ITS PRODUCTS TO ASSURE HEALTHY SALES. ENERGY-RELATED BUSINESSES SUCH AS PUBLIC UTILITIES, HEATING AND COOLING CONTRACTORS, AND FUEL OIL DEALERS ARE NO EXCEPTION. NEW APPROACHES IN ADVERTISING BASED ON ENERGY-EFFICIENCY AND COST-CUTTING SHOULD PROVIDE CHALLENGING WORK IN ADVERTISING. THE ADVERTISING BUSINESS HAS A WIDE VARIETY OF JOBS TO SUIT A WIDE VARIETY OF TALENTS. COPY WRITERS USE THEIR VERBAL SKILLS WITH THOSE OF ARTISTS AND LAYOUT WORKERS TO PRODUCE PLEASING ADS. FILM AND SOUND CREWS MAY WORK ON TELEVISION ADS. ADVERTISING MANAGERS COORDINATE THE AD PROGRAMS FOR THE BUSINESS. MOST EMPLOYERS PREFER TO HIRE COLLEGE GRADUATES FOR ADVERTISING POSITIONS. MOST ADVERTISING WORK IN NEW JERSEY IS NOT DIRECTLY RELATED TO ENERGY.

American Association of Advertising Agencies
200 Park Avenue
New York, New York 10017

American Advertising Federation
1225 Connecticut Avenue NW
Washington, D.C. 20036

COPY WRITER	131.067-014
GRAPHIC DESIGNER	141.061-022
ILLUSTRATOR, MEDICAL AND SCIENTIFIC	141.061-026
MANAGER, ADVERTISING	164.117.010
PHOTOGRAPHER, SCIENTIFIC	143.062-026
TECHNICAL ILLUSTRATOR	017.281-034
WRITER, TECHNICAL PUBLICATIONS	131.267-026

COMPANY SALES REPRESENTATIVE



POWER SALES ENGINEER

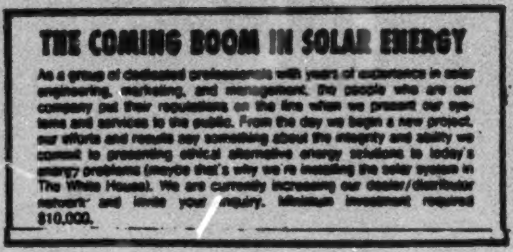
Northeast Region

Major, rapidly growing manufacturer of valves for the power industry seeks a results-oriented Sales Engineer (Degree required) with a minimum of 2 years sales experience in the power industry.

This highly visible position involves sales to reactor manufacturers, architects and engineers, utilities and selected OEM's and turnkey accounts.

We offer excellent starting salary and benefits, your own regional territory, car, expense account, and advancement opportunities. For prompt consideration please send resume in confidence.

An Equal Opportunity Employer M/F



THE COMING BOOM IN SOLAR ENERGY

As a group of dedicated professionals with years of experience in solar engineering, marketing, and management, the people who are our company put their reputations on the line when we present our systems and services to the public. From the day we begin a new project, our efforts and results say something about the integrity and ability we commit to presenting ethical alternative energy solutions to today's energy problems (maybe that's why we're installing the solar system in The White House). We are currently increasing our dealer/distributor network and invite your inquiry. Minimum investment required $10,000.

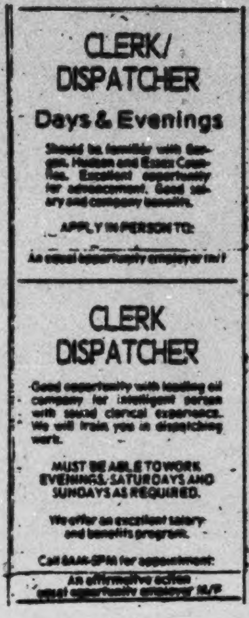
COMPANIES THAT MANUFACTURE ENERGY-RELATED ITEMS SUCH AS TURBINES, DIESEL AND GASOLINE ENGINES, SWITCHGEAR, OIL WELL EQUIPMENT, OR MINING EQUIPMENT EMPLOY SALES REPRESENTATIVES. THESE EMPLOYEES NOT ONLY SELL THE EQUIPMENT TO THE USER, BUT THEY ACT AS SALES AND SERVICE CONSULTANTS. THE JOB REQUIRES A THOROUGH KNOWLEDGE OF THE COMPANY'S PRODUCT LINE AS WELL AS THE NEEDS OF THE CUSTOMER. MOST SALES JOBS REQUIRE TRAVEL AND A CERTAIN DEGREE OF INDEPENDENCE ON THE JOB. LITTLE FORMAL TRAINING FOR SALES IS AVAILABLE: MOST EMPLOYERS EITHER MOVE DESIGN ENGINEERS OR HIRE NEW EMPLOYEES INTO COMPANY TRAINEE PROGRAMS. MOST SALES REPRESENTATIVES IN NEW JERSEY DO NOT SELL ENERGY-RELATED PRODUCTS.

Sales and Marketing Executives International
Career Education Division
380 Lexington Avenue
New York, New York 10017

Manufacturers' Agents National Association
P.O. Box 16878
Irvine, California 92713

SALES ENGINEER, CERAMIC PRODUCTS	006.151-010
SALES ENGINEER, ELECTRICAL PRODUCTS	003.151-010
SALES ENGINEER, ELECTRONICS PRODUCTS AND SYSTEMS	003.151-014
SALES ENGINEER, MARINE EQUIPMENT	014.151-010
SALES ENGINEER, MINING-AND-OIL-WELL EQUIPMENT AND SERVICES	010.151-010
*SALES ENGINEER, NUCLEAR EQUIPMENT	015.151-010
SALES REPRESENTATIVE, OILFIELD SUPPLIES AND EQUIPMENT	274.357-058
SALES REPRESENTATIVE, PETROLEUM PRODUCTS	269.357-014
SALES REPRESENTATIVE, PUBLIC UTILITIES	253.357-010

DISPATCHER



CLERK/
DISPATCHER
Days & Evenings

Should be familiar with Bergen, Hudson and Essex Counties. Excellent opportunity for advancement. Good salary and company benefits.

APPLY IN PERSON TO:

An equal opportunity employer m/f

CLERK
DISPATCHER

Good opportunity with leading oil company for intelligent person with sound clerical experience. We will train you in dispatching work.

MUST BE ABLE TO WORK EVENINGS, SATURDAYS AND SUNDAYS AS REQUIRED.

We offer an excellent salary and benefits program.

Call 8AM-5PM for appointment:

An affirmative action equal opportunity employer M/F

DISPATCHERS COORDINATE THE MOVEMENTS OF A BUSINESS'S GOODS OR SERVICES. THEIR SPECIFIC DUTIES DEPEND UPON THEIR EMPLOYER'S PRODUCT. SHIPPING DISPATCHERS MAY COORDINATE SHIPMENTS OF FUELS OR ENERGY-RELATED HARDWARE. LOAD DISPATCHERS WORKING FOR PUBLIC UTILITIES MAY CONTROL THE FLOW OF ELECTRICITY OR NATURAL GAS. WORK CREWS FOR PUBLIC UTILITIES OR LOCAL FUEL DISTRIBUTORS ARE ASSIGNED BY SERVICE DISPATCHERS. DISPATCHERS KEEP RECORDS OF THE GOODS OR SERVICES ASSIGNED AND THE OUTCOME OF EACH ACTION. A HIGH SCHOOL OR VOCATIONAL-TECHNICAL DIPLOMA IS REQUIRED FOR WORK AS A DISPATCHER. MOST SHIPPING DISPATCHERS DO NOT WORK FOR ENERGY-RELATED FIRMS, BUT UTILITY DISPATCHERS AND SERVICE DISPATCHERS SHOULD FIND CONTINUED EMPLOYMENT IN NEW JERSEY.

Edison Electric Institute
90 Park Avenue
New York, New York 10016

American Society of Traffic and Transportation, Inc.
547 West Jackson Blvd.
Chicago, Illinois 60606

DISPATCHER	932.167-010
DISPATCHER, OIL	914.167-014
DISPATCHER, OIL WELL SERVICES	939.362-010
DISPATCHER, SERVICE	959.167-010
DISPATCHER, SERVICE OR WORK	952.167-010
LOAD DISPATCHER	952.167-010

ENERGY ANALYST

ENERGY ENGINEER

Seeking a qualified engineer to formulate and implement a Division Energy Management Program. We require a BS degree and a minimum of 5 years of appropriate experience in energy management. Will have involvement in capital fund planning and justification.

This is a significant growth company offering a comprehensive benefits program and an excellent career growth opportunity. Please send resume with salary history

An Equal Opportunity
Affirmative Action Employer

Conservation Engineer

Our Plant Engineering Department offers an excellent career opportunity for an energy conservation engineer to collaborate with laboratory and Federal Department of Energy personnel in reducing energy consumption levels of mechanical/electrical systems in the nearly 200 buildings on site. Work includes on-site energy audits and surveys, development of energy reduction plans (including cost analysis), and report writing.

Position requires BS in engineering or equivalent experience in the design, estimating, and implementation of energy conservation projects. Additional working knowledge of HVAC systems and controls and professional engineering license highly desirable.

Our location near ocean beaches and New York City offers unsurpassed recreational possibilities. We offer excellent benefits, 24 days paid annual vacation, relocation allowance.

If you would like to consider joining us here at the Laboratory, please forward resume, including salary history, in confidence

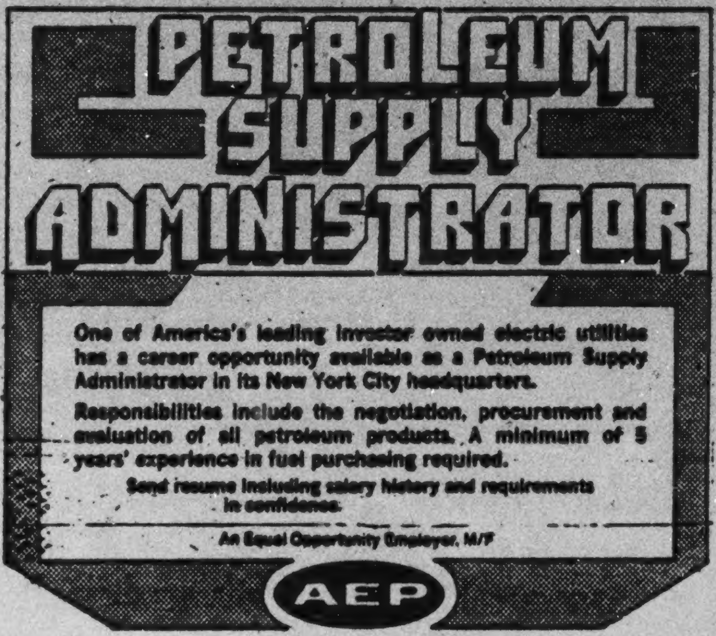
AS ENERGY PRICES RISE, MOST BUSINESSES AND INDUSTRIES ARE ADDING ENERGY ANALYSTS TO THEIR STAFF. SOMETIMES CALLED ENERGY MANAGERS, THESE EMPLOYEES EXAMINE ENERGY USE AND RECOMMEND METHODS TO CONSERVE ENERGY AND REDUCE COSTS. THIS IS A RAPIDLY GROWING FIELD, AS MOST EMPLOYERS ARE NOW REALIZING THAT HIRING THESE EMPLOYEES IS A SOUND INVESTMENT THAT CAN SAVE THEM A GREAT DEAL OF MONEY. ENERGY MANAGERS USE SCIENTIFIC AND ENGINEERING SKILLS COUPLED WITH EXPERIENCE IN PLANT MAINTENANCE. A COLLEGE ENGINEERING OR ASSOCIATE'S TECHNICAL DEGREE IS HELPFUL FOR JOB ENTRY, BUT MANY MAINTENANCE SUPERVISORS ARE NOT TAKING COURSES IN CONSERVATION AND ENERGY MANAGEMENT. THIS FIELD WILL PROVIDE RAPIDLY INCREASING EMPLOYMENT FOR NEW JERSEY ENERGY MANAGERS.

Office of Conservation
New Jersey Department of Energy
101 Commerce Street
Newark, New Jersey 07102

CONSULTANT	189.167-010
DIRECTOR, SERVICE	189.167-014
GENERAL SUPERVISOR	183.167-018
MANAGER, DEPARTMENT	189.167-022
MANAGER, INDUSTRIAL ORGANIZATION	189.117-022
PRODUCTION SUPERINTENDENT	183.117-014
SUPERINTENDENT, MAINTENANCE	189.167-046

The ads heading this description are typical of this very new occupation.

INDUSTRY OR GOVERNMENT ADMINISTRATOR



PETROLEUM SUPPLY ADMINISTRATOR

One of America's leading investor owned electric utilities has a career opportunity available as a Petroleum Supply Administrator in its New York City headquarters.

Responsibilities include the negotiation, procurement and evaluation of all petroleum products. A minimum of 5 years' experience in fuel purchasing required.

Send resume including salary history and requirements in confidence.

An Equal Opportunity Employer, M/F

AEP

COORDINATION AND DIRECTION OF A BUSINESS' ACTIVITIES IS THE RESPONSIBILITY OF THE ADMINISTRATIVE STAFF. GENERALLY SENIOR EMPLOYEES OF A FIRM, THESE PEOPLE HAVE GAINED THE NEEDED SKILLS THROUGH A COMBINATION OF SCHOOLING AND JOB EXPERIENCE. IN BUSINESS THEIR MAJOR WORK IS TO ACHIEVE COMPANY GOALS. THEY CHECK ASPECTS OF THE DAY TO DAY PROGRESS WITH LOWER LEVEL MANAGERS. THEY REPORT THEIR FINDINGS TO THE BOARD OF DIRECTORS AND TO THE STOCKHOLDERS. IN GOVERNMENT THESE ADMINISTRATORS OVERSEE THE WORK OF OTHER EMPLOYEES AND OF CONTRACTORS. IN TURN THE RESULTS ARE PRESENTED TO HIGHER GOVERNMENT OFFICERS. ALTHOUGH PAY IS GOOD, HOURS MAY BE LONG AND JOB-PRESSURE SEVERE. ADMINISTRATORS WITHOUT EXTENSIVE JOB EXPERIENCE MUST HAVE A COLLEGE OR BUSINESS SCHOOL DIPLOMA FOR EMPLOYMENT. MOST PEOPLE TRAINING FOR ADMINISTRATIVE WORK WILL FIND JOBS OUTSIDE THE ENERGY INDUSTRIES. ADMINISTRATIVE POSITIONS IN ENERGY FIRMS IN NEW JERSEY SHOULD FOLLOW ECONOMIC TRENDS.

American Society for Personnel Administration
19 Church Street
Berea, Ohio 44017

International Personnel Management Association
1313 E. 60th Street
Chicago, Illinois 60637

MANAGER, AREA DEVELOPMENT	184.117-030
MANAGER, BULK PLANT	181.117-010
MANAGER, CONTRACTS	163.117-010
MANAGER, FIELD PARTY, GEOPHYSICAL PROSPECTING	181.167-010
MANAGER, NATURAL-GAS UTILIZATION	163.117-010
MANAGER, OFFICE	169.167-034
*MANAGER, PERSONNEL	166.117-018
MANAGER, RESIDENTIAL SALES	163.167-022
MANAGER, UTILITY SALES AND SERVICE	163.167-022
MINE SUPERINTENDENT	181.117-014
PRESIDENT	189.117-026
PROJECT MANAGER, ENVIRONMENTAL RESEARCH	029.167-014
SUPERINTENDENT, COMPRESSOR STATIONS	184.167-146
SUPERINTENDENT, DISTRIBUTION	184.167-154
SUPERINTENDENT, DISTRIBUTION	184.167-154
SUPERINTENDENT, DRILLING AND PRODUCTION	181.167-014
SUPERINTENDENT, ELECTRIC POWER	184.167-162
SUPERINTENDENT, GENERATING PLANT	184.167-166
SUPERINTENDENT, LOCAL	952.137-018
SUPERINTENDENT, MEASUREMENT	184.167-190
SUPERINTENDENT, METERS	184.167-194

INVESTIGATOR

THE WIDESPREAD RESPONSIBILITIES OF PUBLIC UTILITIES AND THE LARGE NUMBER OF PEOPLE SERVED REQUIRE THE EMPLOYMENT OF INVESTIGATORS. THESE EMPLOYEES INSPECT CONTRUCTION SITES AND USERS TO DETERMINE COMPLIANCE TO REGULATIONS. OFTEN INVESTIGATORS WILL SURVEY THE EQUIPMENT OF CUSTOMERS FOR RATE FORECASTING OR USAGE CHECKING. SERVICE INVESTIGATORS CHECK OUT CUSTOMER COMPLAINTS AND OFTEN WILL ACT FOR THE UTILITY TO DETECT METER TAMPERING. A VOCATIONAL-TECHNICAL OR HIGH SCHOOL DIPLOMA IS GENERALLY REQUIRED FOR JOB ENTRY. ON-THE-JOB EXPERIENCE IS A USEFUL TOOL FOR TRAINING INVESTIGATORS. EMPLOYMENT OPPORTUNITIES FOR INVESTIGATORS WORKING IN NEW JERSEY SHOULD FOLLOW TRENDS IN ENERGY CONSUMPTION.

Utility Workers' Union of America
815 16th Street, NW
Washington, D.C. 20006

BUILDING-EQUIPMENT INSPECTOR	956.387-010
CUSTOMER SERVICE REPRESENTATIVE	959.361-010
GAS-METER CHECKER	953.367-014
INSPECTOR, CHIEF	956.267-010
INVESTIGATOR	376.367-022
INVESTIGATOR, UTILITY-BILL COMPLAINTS	241.267-034
LOAD CHECKER	952.367-010
RATE REVIEWER	214.387-014
SCOUT	010.267-010
SERVICE REPRESENTATIVE	959.374-010
SERVICE INVESTIGATOR	241.367-014
STREET-OPENINGS INSPECTOR	859.267-010
UTILITIES SERVICE INVESTIGATOR	821.364-010

SUPERINTENDENT OF GENERATION	184.167-138
SUPERINTENDENT, OIL-WELL SERVICES	010.167-018
SUPERINTENDENT, PIPE-LINES	184.167-198
SUPERINTENDENT, SYSTEM OPERATION	184.167-210
SUPERINTENDENT, TESTS	184.167-218
SUPERINTENDENT, TRANSMISSION	184.167-222

MANAGER of EMPLOYEE BENEFITS

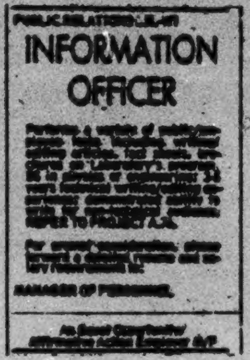
Broad corporate-wide responsibilities with a fortune 100 company makes this an exceptional opportunity for an individual already managing a benefits' function to take on greater challenges and rewards.

Successful applicant will direct benefit analysis, financing, budgeting, benefit communications and compliance, participate in acquisition analysis and integration, advise and participate in benefit/labor negotiations.

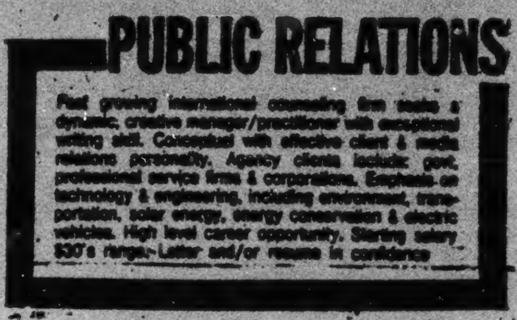
Requires solid managerial experience in all aspects of employee benefits and a record of successive professional achivements. Features excellent compensation package in a very desirable Midwestern location. For consideration, send a resume in confidence

An Equal Opportunity Employer M/F/H

PUBLIC RELATIONS WORKER



INFORMATION OFFICER



PUBLIC RELATIONS

Fast growing international counseling firm seeks a dynamic, creative manager/practitioner with exceptional writing skill. Conceptual with effective client & media relations personality. Agency clients include: govt, professional service firms & corporations. Emphasis on technology & engineering, including environment, transportation, solar energy, energy conservation & electric vehicles. High level career opportunity. Starting salary $30's range.-Letter and/or resume in confidence

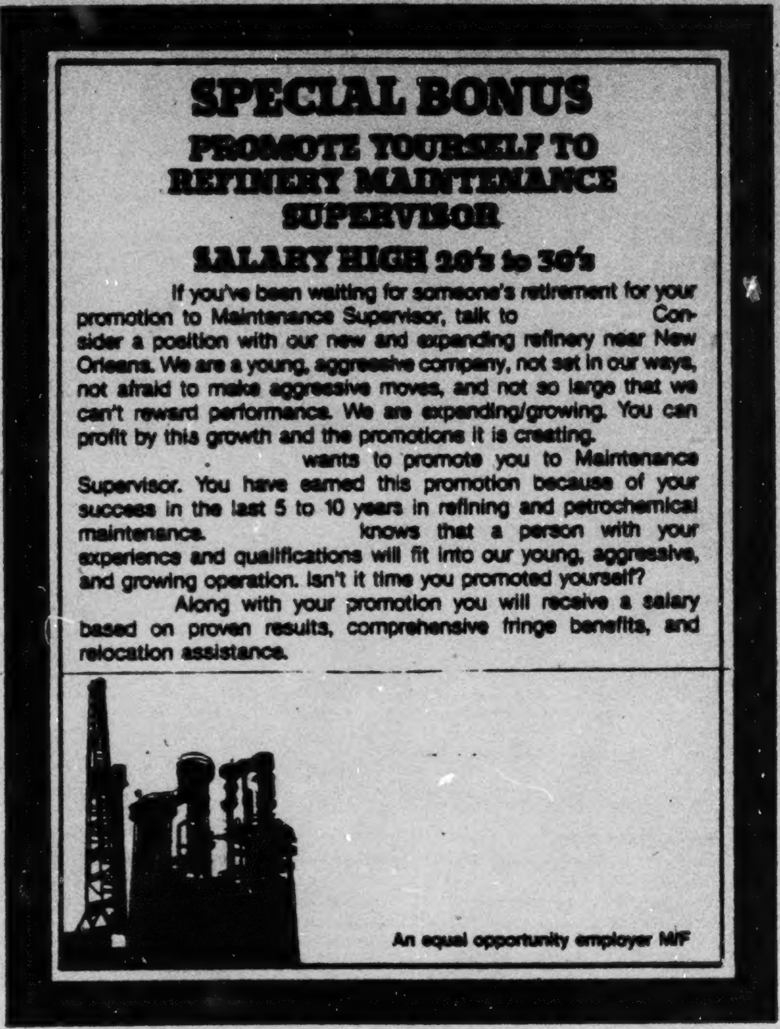
MOST ENERGY-RELATED BUSINESSES DESIRE FAVORABLE PUBLIC ATTITUDES TOWARD THEIR PRODUCT. AS ENERGY PRICES SOAR AND SAFETY IS CALLED TO QUESTION, PUBLIC RELATIONS WORK WILL BECOME MORE CHALLENGING. MUCH OF THIS WORK IS ACTUALLY ADULT EDUCATION AND IS DIRECTED AT THE GENERAL PUBLIC. ACTIVITIES INCLUDE PLANNING TOURS OF THE COMPANY FACILITIES, DEALING WITH THE QUESTIONS POSED BY LOCAL RESIDENTS, AND PRODUCING INFORMATION BROCHURES FOR DISTRIBUTION. A COLLEGE DEGREE COUPLED WITH SOME TECHNICAL BACKGROUND IS GOOD PREPARATION FOR A CAREER IN ENERGY PUBLIC RELATIONS. CURRENT CONCERN REGARDING NUCLEAR SAFETY AND THE MOUNTING COST OF FOREIGN OIL SHOULD PROVIDE INCREASING EMPLOYMENT FOR NEW JERSEY ENERGY PUBLIC RELATIONS WORKERS.

Career Information,
Public Relations Society of America, Inc.
845 Third Avenue
New York, New York 10022

PR Reporter,
Dudley House
P.O. Box 600
Exeter, New Hampshire 03833

GRAPHIC DESIGNER	141.061-022
ILLUSTRATOR, MEDICAL AND SCIENTIFIC	141.061-026
*PUBLIC INFORMATION OFFICER	165.067-010
*PUBLIC-RELATIONS REPRESENTATIVE	165.067-010
TECHNICAL ILLUSTRATOR	017.281-034
WRITER, TECHNICAL PUBLICATIONS	131.267-026

SUPERVISOR



SPECIAL BONUS

PROMOTE YOURSELF TO REFINERY MAINTENANCE SUPERVISOR

SALARY HIGH 20's to 30's

If you've been waiting for someone's retirement for your promotion to Maintenance Supervisor, talk to Consider a position with our new and expanding refinery near New Orleans. We are a young, aggressive company, not set in our ways, not afraid to make aggressive moves, and not so large that we can't reward performance. We are expanding/growing. You can profit by this growth and the promotions it is creating.

wants to promote you to Maintenance Supervisor. You have earned this promotion because of your success in the last 5 to 10 years in refining and petrochemical maintenance. knows that a person with your experience and qualifications will fit into our young, aggressive, and growing operation. Isn't it time you promoted yourself?

Along with your promotion you will receive a salary based on proven results, comprehensive fringe benefits, and relocation assistance.

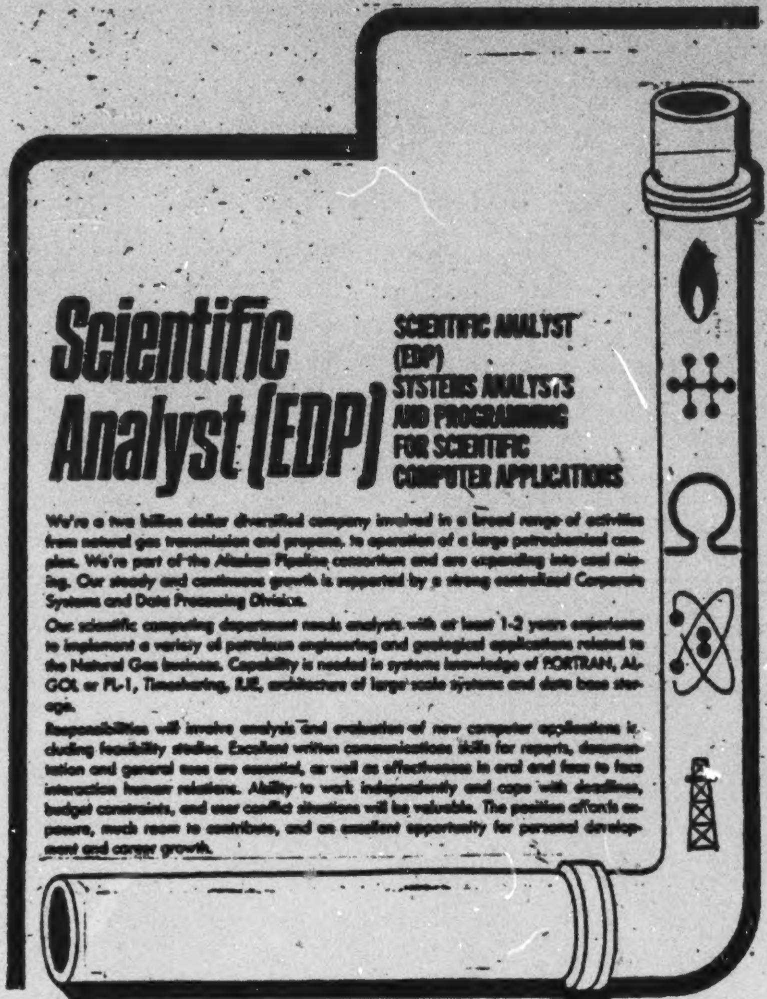
An equal opportunity employer M/F

THE ACTIVITIES OF THE MANY WORKERS EMPLOYED IN ENERGY-RELATED INDUSTRIES ARE COORDINATED BY THE WORK SUPERVISOR. THE SUPERVISOR MUST HAVE A GOOD WORKING KNOWLEDGE OF EACH JOB IN ORDER TO SEE THAT IT IS DONE CORRECTLY. IN ADDITION, SUPERVISORS OFTEN MAKE WORK SCHEDULES, KEEP RECORDS, TRAIN WORKERS, AND TEND TO COMPANY LABOR RELATIONS. IN ALL, THE SUPERVISOR IS RESPONSIBLE FOR THE WORKERS AND THE QUALITY OF THE PRODUCT THEY PRODUCE. MOST SUPERVISORS WORK THEIR WAY UP FROM THE WORKFORCE. THIS GIVES THEM IMPORTANT PRACTICAL EXPERIENCE. SOME EMPLOYERS IN TECHNICAL INDUSTRIES ARE NOW SEEKING COLLEGE GRADUATES FOR SUPERVISORY TRAINEES. SUPERVISORY POSITIONS IN NEW JERSEY WILL FOLLOW GENERAL EMPLOYMENT TRENDS.

American Management Association
135 West 50th Street
New York, New York 10020

BANK BOSS	932.132-010
CHIEF DISPATCHER	939.137-010
COMPRESSOR-STATION ENGINEER, CHIEF	914.132-010
COST-AND-SALES RECORD SUPERVISOR	216.137-010
DISPATCHER, CHIEF	184.167-038
DISPATCHER, CHIEF	914.167-010
DISTRIBUTION SUPERVISOR	914.137-010
ELECTRICAL-INSTALLATION SUPERVISOR	821.131.010
LABOR-CREW SUPERVISOR	899.131-010
LINE SUPERVISOR	821.131-014
MAINTENANCE SUPERVISOR	184.167-050
OIL-WELL SERVICES SUPERVISOR	939.132-014
PIT SUPERVISOR	939.137-014
PRESSURE SUPERVISOR	953.137-014
SERVICE SUPERVISOR	821.131-018
STATION ENGINEER, CHIEF	914.132-014
STEAM-DISTRIBUTION SUPERVISOR	862.137-014
SUPERVISOR, BOILERMAKING	805.131-010
SUPERVISOR, DOCK	914.137-018
SUPERVISOR, FIELD-PIPE-LINES	914.132-022
*SUPERVISOR, MAINTENANCE	899.137-018
SUPERVISOR, METER REPAIR SHOP	710.131-026
SUPERVISOR, MINE	181.167-018
SUPERVISOR, NATURAL-GAS PLANT	542.130-010
SUPERVISOR, PIPE-LINES	862.131-022
SUPERVISOR, PREPARATION PLANT	549.137-014
SUPERVISOR, PRODUCTION	939.131-014
SUPERVISOR, PUMPING	914.131-010
SUPERVISOR, REACTOR FUELING	929.132-010
SUPERVISOR, RIGHT-OF-WAY MAINTENANCE	859.133-010

SYSTEMS ANALYST



Scientific Analyst (EDP)

SCIENTIFIC ANALYST (EDP) SYSTEMS ANALYSTS AND PROGRAMMING FOR SCIENTIFIC COMPUTER APPLICATIONS

We're a two billion dollar diversified company involved in a broad range of activities from natural gas transmission and propane, to operation of a large petrochemical complex. We're part of the Alaskan Pipeline consortium and are expanding into coal mining. Our steady and continuous growth is supported by a strong centralized Corporate Systems and Data Processing Division.

Our scientific computing department needs analysts with at least 1-2 years experience to implement a variety of petroleum engineering and geological applications related to the Natural Gas business. Capability is needed in systems knowledge of FORTRAN, ALGOL or PL-1, Timesharing, RJE, architecture of large scale systems and data base storage.

Responsibilities will involve analysis and evaluation of new computer applications including feasibility studies. Excellent written communications skills for reports, documentation and general use are essential, as well as effectiveness in oral and face to face interaction human relations. Ability to work independently and cope with deadlines, budget constraints, and user conflict situations will be valuable. The position affords exposure, much room to contribute, and an excellent opportunity for personal development and career growth.

THE COMPLEXITY OF THE ENERGY INDUSTRY TODAY DEMANDS CONTINUED SPECIALIZED COMPUTER USE. COMPUTERS DO MANY DIFFERENT JOBS, FROM MODELING THE PRODUCTION OF OIL IN A NEW FIELD TO MONITORING THE BEHAVIOR OF A NUCLEAR POWER PLANT OR KEEPING TRACK OF CUSTOMER BILLING FOR A UTILITY. SYSTEMS ANALYSTS EXAMINE THE NEEDS OF THE USER AND THEN DEVISE A COMPUTER SYSTEM TO MEET THESE NEEDS. THEY WORK CLOSELY WITH INDUSTRY OFFICIALS AND PERSONNEL TO PLAN THE BEST SYSTEM FOR THEIR NEEDS. A COLLEGE DEGREE WITH EMPHASIS ON EITHER MANAGEMENT OR COMPUTER SCIENCE IS GOOD TRAINING FOR SYSTEMS ANALYSTS, ALTHOUGH SOME MAY ADVANCE FROM PROGRAMMING JOBS. THE INCREASING USE OF COMPUTERS IN ENERGY-RELATED ACTIVITIES SHOULD PROVIDE GROWING EMPLOYMENT OPPORTUNITIES FOR NEW JERSEY'S SYSTEMS ANALYSTS.

American Federation of Information Processing Societies
210 Summit Avenue
Montvale, New Jersey 07645

Association for Systems Management
24587 Bagley Road
Cleveland, Ohio 44138

MANAGEMENT ANALYST	161.167-010
PROGRAMMER - ANALYST	012.167-066
PROGRAMMER - INFORMATION SYSTEM	020.187-010
PROGRAMMER - PROCESS CONTROL	020.187-014
*SYSTEMS ANALYST, ELECTRONIC DATA PROCESSING	012.167-066

SELECT

This handbook can be used as a tool to help you select an energy-related career which suits your personality. Who you are is the sum total of your skills, abilities, interests, values, and needs. These words are one way of describing all the experiences which you have had and how they become a part of you.

Professionals have been studying how people find success and satisfaction in their work. These people are career and guidance counselors, psychologists, and specialists in the area of vocational and technical education. They have compiled a number of tests to assist you in finding out your skills and what you would enjoy doing for a career. The key here is you. The more accurate the picture you build of your capabilities, the more likely you are to make a career decision which will satisfy you.

This section will describe abilities and interests in a general way so that you can use these concepts in your self-assessment. You may try to write down the answers to the following two questions.

1) What areas of work am I interested in?
2) How well do my abilities and interests suit those jobs?

At some point early in high school, you will consider a wide range of factors in this decision. Some of these factors are value judgments about what you want in life. You should base your decision on an honest self-appraisal of your goals, aptitudes, abilities, and interests. Here are several questions you should consider:

- Could I profit from an apprenticeship?
- Would I learn skills in the Armed Services?
- Would a two-year or four-year college help me meet my goals?

Discuss the preceding questions with your family and with guidance counselors at your school. Make an informed choice, then plan action step-by-step.

ABILITIES AND INTERESTS

ABILITIES

Human abilities are sometimes divided into general abilities and special abilities. General ability may also be called intelligence or aptitude for learning. To estimate the mental abilities of their students, many school systems administer aptitude tests several times during high school. These tests measure understanding and use of numbers and words. Placement in some school courses may be determined by scores on these tests.

Another kind of ability estimate is the achievement test. Achievement tests measure how much you have learned at school. These may be given annually at school. Your picture of yourself should be based on a clear understanding of your scores on these estimates of your learning aptitudes. Your marks in school may not always match up with your measured aptitudes, so they should not be your only guide.

SPECIAL ABILITIES

Special abilities also affect what people do in their personal and occupational lives. Four types of abilities have been studied and tested: musical, mechanical, clerical, and artistic. People seem to show natural skills in these areas. More energy jobs utilize mechanical or clerical skills than musical or artistic skills, so these two will be discussed here.

MECHANICAL ABILITY consists of six traits: accuracy and precision of movement; speed; dexterity; logical reasoning; knowledge of tools; and ability to visualize forms in space. Many jobs in energy-related fields require a high degree of mechanical skill. Engineering, surgery and dentistry require strong mechanical ability. Mechanical skills are also neccessary in carpentry, tool and die making, and welding. The puzzle at the beginning of Part I, the Embedded Figures task, is one which has been shown to measure mechanical ability.

CLERICAL ABILITY consists of precision in spelling, taking dictation, typing, and rapid calculation. People with special skills in these traits will succeed in business or commercial courses. For people with clerical ability, many occupational fields are possible. The energy-related fields provide some openings, but not as many as those available for people with high mechanical skills.

INTERESTS

Interests are generally defined as your "likes" and "dislikes". Another definition uses the degree of concern, curiosity, or intensity you have for a certain subject. Many people feel that interests are very important in planning both education and career choice. For example, if you have the academic ability for an engineering career but are not interested in day-to-day work with figures, you may not succeed at this career.

In order to study personal interests, career theorists have designed interest questionnaires. The Strong-Campbell Interest Inventory is an example. It contains questions about occupations you might enjoy, as well as sections on school subjects, activities, amusements, types of people you enjoy being with, and personal characteristics which describe you. You can probably take this test at your school.

PERSONALITY AND CAREERS

In addition to the abilities and interests you may have, a strong determinant of your career choice should be your personality type. John Holland has constructed a vocational guidance theory which states that career choice is an expression of personality. A summary of his ideas follow:

- People choose jobs that express their personality type.
- Certain occupations attract people because the situations themselves seem to provide an attractive setting.
- Members of a vocation have similar personalities. They react to many problems and situations in the same way.

Here are the six personality types Holland identifies: Realistic; Investigative; Social; Conventional; Enterprising; and Artistic. A description of these types follows. Read through these types to see if any of them fit your personality.

a. *Realistic* - Realistic people deal with the environment in an objective, concrete manner. They avoid goals and tasks that demand subjectivity and intellectual or artistic abilities. They are unsocial, emotionally stable, and materialistic. They prefer agricultural, technical, skilled trade, and engineering occupations.

b. *Invesitgative* - Investigative people deal with the environment by using their intelligence. They prefer to work with ideas, words, and symbols. They like scientific vocations such as biology, physics, or scientific writing. They enjoy activities such as art, music, and sculpture. They are unsocial, persistent, scholarly, and introverted.

c. *Social* - Social people have good skills in dealing with others. They prefer educatio[illegible]therapeutic, and religious vocations, and such [illegible]ties as church, government, community services, music, and reading. They see themselves as sociable, cheerful, conservative, responsible, achieving, and self-acceptant. They have positive self-images and consider themselves leaders, good speakers, popular, and aggressive. They tend to have a high verbal and low mathematical ability.

d. *Conventional* - Conventional people deal with the environment by choosing goals and activities that are approved by others. Their approach to problems is correct but usually not original. They create a good impression by being neat, sociable, and conservative. They prefer clerical and computational tasks, identify with businessmen, and put a high value on economic matters. They see themselves as shrewd, controlled, stable, and, if male, as masculine. They have more mathematical than verbal abilities.

e. *Enterprising* - Enterprising people cope with the environment by choices that permit them to express adventure, enthusiasm, and leadership. They are persuasive, verbal, outgoing, confident, and aggressive. They prefer sales, supervisory and leadership occupations, and activities that satisfy their need to assert themselves. They like athletics, public speaking, and dramatics and dislike confining, manual, and nonsocial activities. They see themselves as cheerful, impulsive, emotionally stable, adventurous, and strong.

f. *Artistic* - Artistic people cope with the environment by creating art forms and products. They rely on subjective impressions and feelings in seeking solutions to problems. They prefer musical, artistic, literary, and dramatic vocations. They see themselves as unsocial, feminine, submissive, introspective, sensitive, impulsive, and flexible. They have higher verbal than mathematical aptitudes.

Because people in certain jobs share personality traits, they create a particular job environment which suits them. Holland has also described these six environments, each named for the personality type it matches. Each environment has its own set of problems and stresses.

a. *Realistic* - The realistic environment is one in which the tasks are very clear, physical, and concrete. Problems are solved by mechanical skill, persistence, and physical movement from place to place, often outdoors. In this environment, social skills are not highly demanded because most person-to-person relationships are brief and casual. A gas station, a machine shop, a farm, a barber shop are illustrations of setting typical of the realistic environment.

b. *Investigative* - The investigative environment presets those who live in it with tasks that require abstract and creative abilities. Work is with ideas and things rather than with people. Writing ability is frequently required. Relationships with others are not close. A research laboratory, a library, offices with books or scientific equipment are examples of settings typical of the investigative environment.

c. *Social* - The social environment has problems that require people to be able to interpret and change human behavior. They have an interest in caring for others. School, colleges, mental hospitals, churches, and recreational centers are examples of settings of the social environment.

d. *Conventional* - The conventional environment has tasks that require systematic, concrete handling of verbal and mathematical information. Problems involve managing the activities of others or a post office, a file room, a business office.

e. *Enterprising* - The enterprising environment contains tasks that require high verbal ability to direct or persuade people. Social skills are needed because individuals engage in directing, controlling, and planning the activities of others. Typical sttings include a car lot, a real estate office, a political rally, an advertising agency.

f. *Artistic* - The artistic environment has tasks and problems that require interpretation or creation of artistic forms through taste, feelings, and imagination. The settings include a concert hall, a dance studio, a play rehearsal, a study, and a library.

Two final ideas summarize Holland's theory.

. People search for environments and vocations that permit them to exercies their skills and abilities, to express their attitudes and values, to take on agreeable problems and roles, and to avoid disagreeable ones.

. Vocational satisfaction, stability, and achievement depend on the agreement between personality and environment (created largely by the people with whom the work is done).

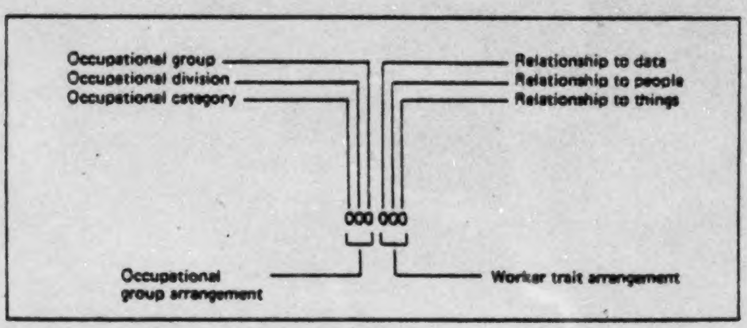
Source: Bruce Shertzer. Career Planning, Freedom to Choose
Houghton Mifflin, Boston, MA. 1977.

DATA, PEOPLE, THINGS

The qualities of work a job requires should also influence your career decision. You might want to consult a complete reference describing all jobs in the United States. One such reference, the Dictionary of Occupational Titles (D.O.T.), is now in its fourth edition. This volume was developed by the U.S. Employment Service to classify the occupations by similarity to one another and by what the worker actually does.

Each occupation listed in the D.O.T. is described in a large paragraph which explains exactly what tasks are performed by the worker. In addition, each title is classified with a nine digit code. The first three digits describe the occupation itself and the second three digits describe how the worker relates to the job (see below). The last three digits are used only to distinguish between similar jobs and are not as important to students as the other digits.

DOT coding system


Occupational group
Occupational division
Occupational category
Relationship to data
Relationship to people
Relationship to things
000 000
Occupational group arrangement
Worker trait arrangement

In surveying jobs using the D.O.T., one can use the first digit of the occupational group to get a general idea of the job classification. This digit is called the occupational category. A list of the nine occupational categories is given below and may aid you in surveying the D.O.T.

0/1 Professional, Technical, and Managerial
2 Clerical and Sales
3 Service
4 Agricultural, Fishery, Forestry, and related occupations
5 Processing
6 Machine Trades
7 Bench Work
8 Structural Work
9 Miscellaneous

Another important part of the job code in the D.O.T. is the worker trait codes. In some way, every job involves the worker with data or figures, with people, and with things. The D.O.T. has rated the type of work each job requires in data, people and things. The more responsible tasks receive numbers of zero or one. The less complex tasks are rated as six, seven, or eight. The other tasks fall in the middle. The following pages describe in detail the coding system used for Data, People, and Things. When using this handbook, it is important to note the D.O.T. codes for the jobs you look at and keep in mind the definitions of worker functions.

A chemical engineer's code might look like this: 008.061. The "008" means a professional job in chemical engineering. The second three digits have this meaning: "0" for data, means very complex work with data; "6" for people, signifies the job requires only talking with people to exchange information; "1" means the job requires precise work with equipment where the equipment is set up for others to use.

In this handbook a set of nine digit numbers follows each job title. This is the D.O.T. code for each job. With these numbers you will be able to look-up more information about energy-related jobs in the D.O.T. You also get a general idea about the worker functions from the second part of the code.

Explanation of Data, People and Things

Much of the information in this publication is based on the premise that every job requires a worker to function in some degree to Data, People and Things. These relationships are identified and explained below. They appear in the form of three listings arranged in each instance from the relatively simple to the complex in such a manner that each successive relationship includes those that are simpler and excludes the more complex.[1] The identifications attached to these relationships are referred to as worker functions, and provide standard terminology for use in summarizing exactly what a worker does on the job.

A job's relationship to Data, People and Things can be expressed in terms of the lowest numbered function in each sequence. These functions taken together indicate the total level of complexity at which the worker performs. The fourth, fifth and sixth digits of the occupational code numbers reflect relationships to Data, People and Things, respectively.[2] These digits express a job's relationship to Data, People and Things by identifying the highest appropriate function in each listing as reflected by the following table:

DATA (4th digit)	PEOPLE (5th digit)	THINGS (6th digit)
0 Synthesizing	0 Mentoring	0 Setting-Up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signaling	6 Feeding - Offbearing
	7 Serving	7 Handling
	8 Taking Instructions - Helping	

Definitions of Worker Functions

DATA: Information, knowledge, and conceptions, related to data, people, or things, obtained by observation, investigation, interpretation, visualization, and mental creation. Data are intangible and include numbers, words, symbols, ideas, concepts, and oral verbalization.

0 Synthesizing: Integrating analyses of data to discover facts and/or develop knowledge concepts or interpretations.

1 Coordinating: Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determination and/or reporting on events.

2 Analyzing: Examining and evaluating data. Presenting alternative actions in relation to the evaluation is frequently involved.

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[1] As each of the relationships to People represents a wide range of complexity, resulting in considerable overlap among occupations, their arrangement is somewhat arbitrary and can be considered a hierarchy only in the most general sense.

[2] Only those relationships which are occupationally significant in terms of the requirements of the job are reflected in the code numbers. The incidental relationships which every worker has to Data, People, and Things, but which do not seriously affect successful performance of the essential duties of the job, are not reflected.

3. Compiling: Gathering, collating, or classifying information about data, people, or things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

4 Computing: Performing arithmetic operations and reporting on and/or carrying out a prescribed action in relation to them. Does not include counting.

5 Copying: Transcribing, entering, or posting data.

6 Comparing: Judging the readily observable functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

PEOPLE: Human beings; also animals dealt with on an individual basis as if they were human.

0 Mentoring: Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or other professional principles.

1 Negotiating: Exchanging ideas, information, and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions, or solutions.

2 Instructing: Teaching subject matter to others, or training others (including animals) through explanation, demonstration, and supervised practice; or making recommendations on the basis of technical disciplines.

3. Supervising: Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them, and promoting efficiency. A variety of responsibilities is involved in this function.

4 Diverting: Amusing others. (Usually accomplished through the medium of stage, screen, television, or radio.)

5 Persuading: Influencing others in favor of a product, service, or point of view.

6 Speaking-Signaling: Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants.

7 Serving: Attending to the needs or requests of people or animals or the expressed or implicit wishes of people. Immediate response is involved.

8 Taking Instructions-Helping: Helping applies to "non-learning" helpers. No variety of responsibility is involved in this function.

THINGS: Inanimate objects as distinguished from human beings, substances or materials; machines, tools, equipment and products. A thing is tangible and has shape, form, and other physical characteristics.

0 Setting up: Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions.

change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

1 Precision Working: Using body members and/or tools or work aids to work, move, guide, or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

2 Operating-Controlling: Starting, stopping, controlling, and adjusting the progress of machines or equipment. Operating machines involves setting up and adjusting the machine or material(s) as the work progresses. Controlling involves observing gages, dials, etc., and turning valves and other devices to regulate factors such as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials.

3 Driving-Operating: Starting, stopping, and controlling the actions of machines or equipment for which a course must be steered, or which must be guided, in order to fabricate, process, and/or move things or people. Involves such activities as observing gages and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace charging machines, paving machines and hoisting machines. Excludes manually powered machines, such as handtrucks and dollies, and power assisted machines, such as electric wheelbarrows and handtrucks.

4 Manipulating: Using body members, tools, or special devices to work, move, guide, or place objects or materials. Involves some latitude for judgment with regard to precision attained and selecting appropriate tool, object, or material, although this is readily manifest.

5 Tending: Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 Feeding-Offbearing: Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

7 Handling: Using body members, handtools, and/or special devices to work, move or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object, or material.

INTEREST INVENTORY

The Circle Maze in Part I is based upon Holland's theory. The maze was designed to help people make choices between jobs which are mainly Realistic or Investigative in nature. More than 75% of the energy-related occupations defined in this handbook can be classified as primarily Realistic or Investigative. They may involve Enterprising, Conventional, Social, or Artistic, components in a supportive way. It seems likely, however, that if your personality type does not include at least some of the qualities or interests identified as Realistic or Investigative, you might consider choosing a career in a field other than energy.

The best way to see what personality type you have is to take one of the several vocational interest tests. The Strong-Campbell Interest Inventory and Holland's Self-Directed Search are questionnaires which can be completed in less than an hour. The answers you give define your interests.

These interests are compared with those of people who are working at various careers. The Strong-Campbell classifies your interests into the six categories Holland has described. The test also ranks the strength of of your interests in certain areas such as music, sales, and mechanical activities. Finally, it tells you how similar or dissimilar your interests are when compared to those of people employed in various occupations.

The Strong-Campbell is generally computer scored so that each person who takes it gets a 15 to 20 page printout. This printout is individually constructed to represent your traits. The Self-Directed Search is self-scored. The results is a three letter code of your personality. You match your code with the codes for more than 500 occupations recorded in a key. Generally, you find your personal code corresponds to 15 to 20 occupations.

You can see that your skills and interests may determine both your education and choice of career. The interests you have influence the skills you acquire. For example, if you study wood-working because of an interest in wood-carving, you would be building a skill which might later affect your career choice.

ENERGY OCCUPATIONS WORKER FUNCTIONS INVENTORY

INTRODUCTION AND DIRECTIONS

The Energy Occupations Worker Functions Inventory is intended to help you measure your preferences for job functions. It measures to what degree you prefer to work with data, with people, and with things. Also, you may be interested in doing very complex and responsible tasks in one of the three main categories but not in all three. Your answers may help you decide.

There are three sets of questions describing activities performed in many different kinds of occupations. Read each question and decide if you would like to do that activity. If you are not familiar with the activity, or it requires training you have not had, try to measure how you would feel about that activity. Do not let the elements of salary, prestige, or future promotions affect your choice. For each item decide whether you would like or dislike that activity, then mark the sheet in the following way:

L	l	d	D	
☑	☐	☐	☐	LIKE VERY MUCH
☐	☑	☐	☐	LIKE A LITTLE
☐	☐	☑	☐	DISLIKE A LITTLE
☐	☐	☐	☑	DISLIKE VERY MUCH

You may take as much time as you need. Answer each item so that you can accurately determine your most correct score. You will compare your score with a key to estimate the type of worker function you might enjoy the most. Now turn to the Inventory and begin.

DATA

		L	l	d	D
1.	Analyze drinking water samples to measure pollutants	☐	☐	☐	☐
2.	Use indirect evidence to find buried oil or gas deposits	☐	☐	☐	☐
3.	Plan lab experiments with bacteria to decompose solid waste	☐	☐	☐	☐
4.	Analyze energy trends to predict future needs	☐	☐	☐	☐
5.	Interpret data on the effects of power plants upon living organisms	☐	☐	☐	☐
6.	Perform experiments to determine the properties of new alloys	☐	☐	☐	☐
7.	Test boiler water to find corrosive chemicals	☐	☐	☐	☐
8.	Use measuring devices to find defects in metal structures	☐	☐	☐	☐
9.	Check accuracy of gas pumps of fuel trucks	☐	☐	☐	☐
10.	Sterilize and arrange glassware and other lab materials	☐	☐	☐	☐
	TOTALS:	☐	☐	☐	☐

PEOPLE

		L	l	d	D
1.	Drive a bus on an experimental mass transit route as a service to senior citizens	☐	☐	☐	☐
2.	Patrol electric power plant sites to prevent personal injury or property damage	☐	☐	☐	☐
3.	Attend to the comfort of passengers traveling long distances	☐	☐	☐	☐
4.	Advise persons on methods of home energy conservation	☐	☐	☐	☐
5.	Conduct energy education programs for students	☐	☐	☐	☐
6.	Teach science concepts through energy experiments	☐	☐	☐	☐
7.	Persuade people to purchase solar heating	☐	☐	☐	☐
8.	Provide professional help in colving personal problems	☐	☐	☐	☐
9.	Be a companion to physically handicapped adults or children	☐	☐	☐	☐
10.	Supervise and assist others in conducting research projects	☐	☐	☐	☐
	TOTALS:	☐	☐	☐	☐

THINGS

		L	l	d	D
1.	Erect floor decks and storage tanks of structural steel	☐	☐	☐	☐
2.	Wire, tape, or spray insulation onto places of great heat loss.	☐	☐	☐	☐
3.	Follow blueprints to install wiring in walls and ceilings	☐	☐	☐	☐
4.	Assemble, fasten, and solder parts of circuits using diagrams	☐	☐	☐	☐
5.	Run chemical tests to measure levels of toxic chemicals	☐	☐	☐	☐
6.	Use drafting tools to draw accurate sketches	☐	☐	☐	☐
7.	Design a wind-driven power-generator for home use	☐	☐	☐	☐
8.	Engineer an accurate drilling method to find oil	☐	☐	☐	☐
9.	Devise a ceramic material to hold nuclear waste	☐	☐	☐	☐
10.	Engineer the design of an offshore oil rig	☐	☐	☐	☐
	TOTALS:	☐	☐	☐	☐

For Scoring directions, see next page.

SCORING AND RANKING YOURSELF

Count all the L's, l's, d's, and D's you marked in each section. Follow the next steps to get a score for your preferences.

DATA		**PEOPLE**		**THINGS**	
#of L's ☐ x 3 =	☐	#of L's ☐ x 3 =	☐	#of L's ☐ x 3 =	☐
#of l's ☐ x 2 =	☐	#of l's ☐ x 2 =	☐	#of l's ☐ x 2 =	☐
#of d's ☐ x 1 =	☐	#of d's ☐ x 1 =	☐	#of d's ☐ x 1 =	☐
#of D's ☐ x 0 =	☐	#of D's ☐ x 0 =	☐	#of D's ☐ x 0 =	☐
Total (sum)	☐	Total (sum)	☐	Total (sum)	☐

Your Score Profile:

Data ☐ People ☐ Things ☐

Now find your score on the following key to obtain a rank for your preferences.

Data Score	0-4	4-11	11-22	22-27	27-30
Data Rank	5	4	3	2	1
People Score	0-4	4-12	12-24	24-27	27-30
People Rank	5	4	3	2	1
Things Score	0-8	8-11	11-20	20-27	27-30
Things Rank	5	4	3	2	1

Your Rank Profile:

Data ☐ People ☐ Things ☐

Read through the next section to understand the rankings then proceed to match your Rank Profile with those listed. When you find a match turn to the occupation outlines and descriptions. If you do not find one just like yours, find a Rank Profile similar to yours. For example, if your Rank Profile is 4,4,4, also consider 4,4,5 or 4,4,3 jobs. Do this especially if your Rank Profile is similar to others listed.

UNDERSTANDING THE ENERGY OCCUPATIONS WORKER FUNCTIONS INVENTORY

The energy career opportunities have been analyzed according to D.O.T. worker function code and arranged into 34 categories. Within each category, the D.O.T. worker functions for data, for people and for things are given average values. The averages are a general picture of the responsibilities found in each job category.

The highest function averages were given a rank of one, the middle high averages were two, and so on, to the lowest average ranked five. Each job category has a unique three part Rank Profile. The list is presented with data ranked first. For example, see Scientific - 1, 2, 3. Here the "1" ranking means occupations classified as scientific. The worker is to be responsible for complicated operations using "Data" in the form of information, knowledge, or concepts. The operations with "People" are ranked "2", somewhat less involved though still of a high level, such as instructing or supervising. Finally, the ranking of "3" for "Things" means that this job category requires using some equipment to put together something or to measure or regulate it. This operation is not as involved as some other occupations might demand.

As you try to match your own Rank Profile, keep in mind that many energy occupations demand high involvement with data or with things. Comparatively few occupations showed high ranks for people funcitons.

OCCUPATIONAL CATEGORIES	DATA	PEOPLE	THINGS
SCIENTIFIC	1	2	3
ARCHITECT	1	3	1
ENGINEERING	1	3	3
ADVERTISING	1	3	5
SUPERVISOR	2	1	4
SYSTEMS ANALYST	2	1	5
MANAGER/OFFICIAL	2	2	5
ENGINEER & SCIENCE TECHNICIAN	2	3	2
PROGRAMMER	2	3	4
DISPATCHER	2	3	5
TEACHER	3	1	5
SALES ENGINEER	3	2	3
LABORATORY TECHNICIAN	3	3	1
FABRICATOR	3	3	2
SECRETARY	3	3	3
INSPECTOR	3	3	4
TECHNICAL WRITER	3	3	5
INVESTIGATOR	3	3	5
MECHANICAL & ELECTRICAL TRADES	3	4	1
ELECTRONICS TECHNICIAN	3	4	2
INSTRUMENT ASSEMBLER & REPAIRER	3	5	2
PUMPING & PIPELINE	3	5	3
LINE WORK	4	3	2
STATIONARY ENGINEER	4	3	3
DRAFTER	4	4	2
REFINERY OPERATOR	4	4	2
CALCULATING CLERK	4	4	2
CONSTRUCTION TRADES	4	4	3
WELL CREW WORKER	4	4	3
RECORDS CLERK	4	4	5
LABOR/MAINTENANCE	5	4	5
MINING OPERATIONS	5	5	3
TRUCKDRIVER	5	5	3
OPERATORS	5	5	4

REVIEW

In the previous activities presented in this handbook you may have gained some idea of career possibilities in energy. You may have measured your perceptual skills with the Embedded Figures puzzles. You have pursued some possible job interests through the Interest Maze. Next, you used the Worker Function Inventory to select two or three occupations for more detailed study. After surveying the occupations descriptions and the field descriptions, you may now have a better idea of some of the jobs in energy which might suit you.

This section is organized to help you make plans to reach your goal. Some of the issues discussed here will refer you to the last section, ENERGY CAREER RESOURCES.

EDUCATIONAL OPTIONS

Getting an education which suits your career plans begins with making choices between hometown schools and larger, area vocational-technical schools. If you choose to learn a craft or trade, you may qualify to attend the vocational-technical school built to serve you. (See listing in Part IV.) You may earn your high school diploma at this type of school.

While in high school, you may qualify for part-time programs to learn construction trades or service-based jobs while working within your own community. Two programs you may want to explore are distributive education and work experience training programs. Contact the guidance counselor at your school for more help.

Following high school, there are several ways to be trained for the career you choose. Some technical jobs require two-year associate degrees which may be earned through the community, county, or junior colleges in New Jersey.

Apprenticeship programs train highly skilled trade workers. Among the energy-related trades with apprenticeships are cement masons, electricians, pipefitters, plumbers, sheet metal workers, machinists, and carpenters. Apprenticeships are regulated by federal law. The young apprentice, who must be at least 16 years of age, signs a written agreement which is registered with the state apprenticeship council. By federal law, apprenticeship programs must include at least two years field work consisting of not less than 4,000 hours, and 144 hours per year of related classroom experience. Apprenticeship programs share several advantages:

1. They provide the chance to develop valuable vocational skills while being paid to learn.
2. They offer opportunities for advancement and a guaranteed wage which increases regularly.
3. They offer training as a skilled craftsperson.

There also are several disadvantages to apprenticeships. These include:

- inflexibility of the training programs
- their relative length,
- unrealistic entry standards
- restriction within labor economy which links the demand for apprentices to business cycles. Only when business is good is the demand to employ apprentices high.

Military training provides some people just the opportunity to get special schooling. In certain job categories, skills learned in the military may be brought to civilian employment. For example, nuclear experience in the navy is recognized as good training for work in nuclear power plants.

Many energy-related jobs can be learned through on-the-job experience. For these positions, little formal training is required. Employment competition is stiff, and most employers prefer to hire people with high school or vocational-technical school diplomas. A good attitude and steady grades in school help get the job.

Finally, most professional and some administrative jobs require a college education with at least a bachelor's degree (B.A., B.S., B.S.E.). Engineers and scientists who are engaged in research have advanced degrees. Most researchers have doctoral (Ph.D.) degrees in their chosen fields. Job competition may lead those with master's degrees (M.S.) to technical-level jobs. Top-level administrators usually begin their careers with a master's degree in business administration (MBA). Preparation for college involves academic courses in high school with emphasis on english, math, and science. Talk to your guidance counselor about colleges early in high school to assure adequate preparation.

GETTING THE JOB

Once you know what you would like to do, your task is to find a suitable opening, then to prepare yourself to win that job. This section of the handbook will help you sell your talents most effectively. Do not underestimate the importance of this concept. The employment officers are professionals skilled in judging character, asking questions, and making decisions. With a little preparation you can maximize your possibilities for success.

LOCATING THE JOB

Locating a suitable job is your first task. Many jobs are advertised in the classified section of daily newspapers. The newspapers printed in urban centers such as Newark, Trenton, New York and Philadelphia contain ads for a wide variety of jobs because of their large circulation. All the advertisements used to illustrate this handbook were found in newspapers published recently in New Jersey or New York City.

State jobs are announced monthly in a civil service publication available at libraries and at State Employment Offices. The employment counselors at those State Employment Centers can be helpful in many ways during your search.

Statistics about the nationwide labor force are compiled by several divisions of the U.S. Department of Labor. The Bureau of Labor Statistics publishes a periodical called the Occupational Outlook Quarterly (O.O.Q.). Articles which appear in the O.O.Q. help students learn more about the job market from recently compiled data. Written in an easy to read style, the O.O.Q. often profiles jobs in energy-related fields. You might also write for a newspaper-like serial, Occupations in Demand, which lists only those jobs in great demand. It is available from:

The U.S. Employment Service, TET,
Employment and Training Administration
U.S. Department of Labor
Washington, D.C. 20213

Other contacts you should make include those companies which interest you directly. Consult the resources listed in the next section, then contact the personnel office to inquire about openings. A model letter of inquiry which you might adapt to your needs follows in this section.

Finally, you might talk to people you know who are working at energy companies that interest you. Private employment agencies also can be helpful, although they sometimes require a fee from the employee for their services. It is important to use wisely any personal contacts known to you or to your family or friends. Do not rely on them to do much more than inform you about job openings. Remember, it's up to you to get the right job to begin your career.

MAKING THEM AN OFFER THEY CAN'T REFUSE

Letters of Application

To learn of job openings in energy, you may choose to write a letter of inquiry to companies where you would like to work. A letter of inquiry may serve several functions. It may be either a response to an ad or an inquiry about unannounced openings. When accompanied by a resume which summarizes your education and work experience, the inquiry letter becomes a cover letter. This letter will probably be your first contact with a prospective employee. Make it count.

On the next page is a set of suggestions to improve both your letter writing and resume writing style. Note the list of "positive action" words. By improving your writing, you can increase your chances for getting a job.

Writing Your Cover Letter

A cover letter must always accompany your resume. The cover letter, letter of application, or "fishing" letter is your introduction to a potential employer. It may create the first impression of your ability to communicate and may determine whether you are considered for employment. From the letter, a potential employer may learn many things about you, so it is important to keep the employer's needs and interests in mind. Construct your letter so that it reflects your abilities and works for you. Type neatly, using care in sentence structure, spelling, and punctuation. Address your letter to a specific person (use employer contact directories or other sources). State the kind of position you are seeking and why you are applying to that particular firm, organization, school system or agency. Be clear, brief, businesslike, natural, well-organized and courteous.

The following information may seem elementary, but it is remarkable how many mistakes are made in employment correspondence.

1. Is the letter brief and neat?
2. Is the employer's name spelled correctly?
3. Is his/her title written properly?
4. Is your opening remark not more than five lines?
5. Is it factual rather than opinion?
6. Have you enlarged a little on one but not more than two phases of your experience?
7. Have you indicated that a resume is attached or enclosed?
8. Have you stated one but not more than two abbreviated examples from your resume?
9. In the abbreviations from the resume have you retained the most signficiant facts?
10. Have you asked for the job and told the employer you wish to work for him/her?
11. Have you asked for the appointment?
12. Is the next move up to you?

Postive Action Words for Resume/Cover Letter Preparation

Capacity
Capability
Ability
Competence
Effectiveness
Maturity

Management
Administrative
Technical
Executive

Professional
Academic

Versatile
Well-rounded
Scope
Wide Background
Resourceful
Equipped

Achieved
Accomplished
Effected

Designed
Developed
Built
Established
Implemented
Controlled
Guided

Managed
Directed
Supervised

Initiated
Created
Organized

Trained
Led
Coordinated

Improved
Expanded

Thoroughly
Completely
Particularly
Preference
Pertinent

Evident
Demonstrated
Proven

Major
Significant
Responsible
Consistent
Contributions
Substantial

Potential

Specialist

Performance

Record

Increasing
Expanding
Enlarging
Building
Developing

Successful
Capable
Competent
Qualified
Proficient
Efficient
Consistent
Knowledgeable
Experienced
Productive
Effective
Mature
Stable
Well-educated

Thorough
Sound
Complete
Positive
Vigorous
Profitable

Significantly
Substantially
Repeatedly

Terry Bradley
251 Morrison Avenue
Trenton, New Jersey 08601
(609) 292-8146

JOB OBJECTIVE

Sales job in clothing store or clothing section of department store. Eventually desire position as sales supervisor or buyer.

EDUCATION

Trenton High School Trenton, New Jersey. Graduated: June 1977
Special courses: Business Math I & II. Distributive education classes in Sales, Advertising, Marketing, and Personnel Management. Public Speaking
Grades: B+ average in special courses, B average overall
Attendance: 6 total days absent in 4 years, 3 times tardy

RELATED WORK EXPERIENCE

January 5-June 14, 1977. Flagg Shoe Co., Lawrenceville, New Jersey
Part-time sales clerk for large family shoe store
Responsibilities: Gave customer service, used cash register, took inventories, designed window displays, wrote radio spots

OTHER WORK EXPERIENCE

1975-1976 (summers). Nelson's Payless Gas, Ewing, New Jersey
Full-time service station attendant
Responsibilities: Pumped gas, changed oil, made minor repairs, used cash register, arranged tire and battery sales displays
1973-1974 (summers). Babysitting and yard work, Trenton, New Jersey

HONORS AND ACTIVITIES

Treasurer, Harrison Distributive Education Club, 1976-77
Outstanding Spring Sales Award, Flagg Shoe Company, 1977
Member, YWCA Fashion Board

REFERENCES

Mrs. Roberta Flagg
Manager
Flagg Shoe Company
Lawrenceville, New Jersey 08648

Mr. Richard Nelson, Owner
Nelson's Payless Gas
Trenton, New Jersey 08601

Mr. Otto Money
(Business Math Teacher)
312 Greenback Way
Lambertville, New Jersey 08530

COVER LETTER

Your present address
City, State, Zip Code
Date of Writing

Mr. (or Ms.) John Doe
Title
Company
Street Address
City, State, Zip Code

Dear Mr. (or Ms.) Doe:

1st paragraph - Tell why you are writing; name the position, or field, or general occupational area about which you are asking; if you know of a specific job opening, mention it.

2nd paragraph - Mention one or two qualifications you think would be of greatest interest to the employer, slanting your remarks to his point of view. Tell why you are particularly interested in his company, location, or type of work. If you have had related experience, or specialized training, be sure to point it out. You could mention your career objective if you haven't already.

3rd paragraph - Refer the reader to the enclosed resume, application, or the median which gives information concerning your qualifications.

4th paragraph - Close by making a specific request for an interview. Make sure your closing is not vague, but makes a specific action from the reader likely: either you will get in touch with them or you look forward to hearing from them.

Sincerely,

(Your handwritten signature)

Type your name

enc.

Resume

Writing an attractive resume is a difficult but necessary strategy to get an interview with the employers you want to see. Both what you say and how you say it are important aspects of your plan. Employers and professional career counselors disagree on a single acceptable format. The following paragraphs suggest useful organizing ideas for your resume.

What Do You Want to Say?

If you are in doubt about what to include or what to leave out of your resume, the yardstick is relevance to the job. If you are seeking jobs with diverse needs, you may decide to have several resumes on hand, each geared toward a specific field in which you are interested. You may want to examine sample resumes to get some idea of the ways in which different resumes approach the question of content:

Personal Data - The only information required is your name, address and telephone number. If for some reason you think additional personal information may positively impress a potential employer, you may choose to include your age, marital status, sex, race, religion, etc.

Career Objective - A brief declarative statement indicating what it is you would actually like to do. A clearly defined career objective is often the result of an in-depth assessment of your skills, interests, priorities, short term and long range goals.

Education - A description of your education may vary in detail with its relevance to the job you have in mind. Include degree(s), major, institution, year of graduation, sholarships, honors, awards, special training, relevant workshops, independent study experience, field work, praticum experience, etc. If you are applying for a teaching position, you may want to include the location of the high school you attended. Otherwise, it need not appear on the resume.

Work Experience - Cite your most recent experience first and expand on those jobs which may be pertinent to the work you are presently seeking. Some students choose to emphasize the fact that they earned a percentage of their college expenses working summers and part-time during the school year.

Special Skills - Again, what you include should be guided by what the requirements of your potential job market may be. You might want to mention language skills, computer skills, office machine experience, a pilot's license, etc.

References - It is usually sufficient to include a statement indicating that references will be furnished upon request. You may choose to include the address of the Career Development and Placement Services Office where your letters of recommendation are on file.

When Appropriate - You may choose to include extra-curricular activities, military service, licensing or certification information, published works, professional membership, student teaching experience, etc.

How Do You Want to Say it?

Remember, there is no single accepted resume format. Some common sense principles, however, dictate the form of your resume. Your resume should be neat. It should be typed clearly. Make careful and liberal use of white space. Don't crowd your information. Distribute it evenly over the whole page of your resume. Your resume creates a visual as well as a factual first impression of you.

Critique Your Resume

1. Overall appearance. Do you want to read it?
2. Layout. Is the resume well typed and printed, good margins, etc.? Do important points stand out?
3. Length. Have you tried to limit your resume to a reasonable length?

4. Relevance. Has extraneous material been eliminated?
5. Action orientation. Have you made good use of action verbs?
6. Specificity. Does the resume focus on specific information about experience, projects, etc.?
7. Accomplishments. Are accomplishments and problem solving skills emphasized?
8. Completeness. Have you said all you wanted to say about yourself?

PREPARATION FOR AN INTERVIEW

Employers recognize the job interview as their chance to size up your potential. You want to convince the interviewer that your skills and goals fit the company. To do this, you need to be informed about the company and about how to best present yourself.

The following paragraphs list some useful facts about job interviews. You may encounter one of the several different types of interviews listed in this section. Each one will probably include a greeting by your interviewer, a review of your background, and a discussion of the requirements of the position and how you might fit them. The interview concludes with some follow-up suggestions.

Many counselors suggest that you should be prepared with at least one question about the company or the job which shows you are familiar with the field of work, and the company's needs. Furthermore, the interviewer may ask questions which seem to be aimed at your weak points. Try to frame your responses to your best advantage. Treat your weakness as a strength. Perhaps you are impatient with people who do not give their best effort or are unable to reach decisions without a complete grasp of the problem. Show how this weakness might work as a strength to help the company.

The following material summarizes the views of some guidance counselors about interviews. With these ideas in mind, you can feel better informed about your first job interview.

Sometimes role-playing job interviews can provide confidence for the real interview. Find a friend to listen to different answers to the questions listed as sample interview questions.

Different Types of Interviews

Stress Interview - high pressure situation.

Well Planned, Orderly - same sequence of questions for each applicant.

Casual - whatever comes up (you do the work).

Non-Related - the assumption here is the person technically competent. Can we work with him/her? All conversation is seemingly unrelated.

Non-Directive - the interviewer does not participate - the candidate is encouraged to talk on and on.

Planned With Shockers - sudden difficult questions carefully arranged to come up when you are most relaxed.

Totally Technical - what lab projects did you like best? etc.

Structure of the Interview

- Introductory Stage - establishing rapport.
- Review of background and interests.
- Discussion of employer's needs and where you might fit in.
- Conclusion, clarification, procedural matters clarified (next contact, etc.)

Sample Interview Questions

1. Tell me about yourself.
2. Why did you choose your particular field of work?
3. What courses did you like most? Least?
4. How did you spend your summers during college?
5. Have you ever had any difficulty getting along with faculty or fellow students?
6. Do you plan to do graduate work?
7. What have you learned from some of the jobs you held?
8. What do you feel are your greatest strengths?
9. Are you willing to go where the company sends you?
10. Why do you think you might like to work for us?
11. What do you know about our company?
12. What section of our organization are you most interested in?
13. If you could live in any part of the world, or do anything you wanted to, what and where would it be?
14. How does your husband/wife feel about your work (career, profession)?
15. What do people criticize about you?

16. What kind of people do you enjoy working with?
17. Tell me about your weaknesses.
18. When could you start work?
19. What else do you think I should know about you?
20. Do you have any other questions?

Discriminatory Interviewing Practices

Questions asked of women candidates not asked of men seeking a similar position (and the reverse) may be evidence of discrimination. This includes discussion regarding marriage plans, family planning, child care arrangement, personal background, family history, creed and religion, National Guard or Reserve Units of application, arrest record (may ask the number and kinds of convictions if crimes relate to work sought), height and weight. In addition, questions must be specifically job related.

Interview Knockout Factors

Reasons candidates don't get past the crucial screening interview:

- Asks few or poor questions about the job.
- Unable to express ideas clearly.
- Not prepared for the interview--no research on the company.
- Poor personal appearance.
- Lack of knowledge or skills necessary to do the job--not qualified.
- Heavy personal indebtedness (might leave for a higher paying job).
- Only interested in best dollar offer - instead of interest in the job and firm.
- Ill or poorly defined career goals.
- Lack of mobility - nearly all large firms recruit for future management; you can't move up staying in one town.
- Unhappy personality (disliked former jobs, unhappy married life, dissatisfied with college and school work) all show the characteristic of an unhappy person...who soon will be unhappy with our firm.

- No confidence or poise...Fails to look the interviewer in the eye.
- Makes excuses during the interview, evasiveness, hedges on answers.
- No real interest in the company or industry, little or no enthusiasim, merely shopping around.

GOOD LUCK

NEW JERSEY ENERGY EDUCATIONAL PROGRAMS

This section identifies energy-related educational programs in New Jersey. The listings include: New Jersey Area Vocational-Technical Schools and Energy-Related Programs, Technical Institutes, Junior and County/Community Colleges, and Four-Year Colleges. These lists are compiled by counties for convenience in locating programs in specific areas of the state. The names and addresses of the schools and colleges are listed in alphabetical order within the counties. Programs or course titles are also provided. You may want to write for more information or you may prefer to call, using the phone numbers provided in the lists.

NEW JERSEY AREA VOCATIONAL-TECHNICAL SCHOOLS AND ENERGY-RELATED PROGRAMS

The following list includes New Jersey Area Vocational-Technical Schools and their energy related educational programs. The list is compiled by counties, in alphabetical order.

Machine Shop, Carpentry and Masonry programs are not included because of their broad scope, although these skills do apply to some energy occupations. Most schools listed do offer these three courses.

* = Administrative Office

ATLANTIC COUNTY

ATLANTIC COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
Mays Landing, N.J. 08330
(609)625-2249
(609)641-6562

Auto Mechanics
Climate Control
Data Processing
Diesel Mechanics
Electricity
Electronics
Plumbing
Welding

BERGEN COUNTY

BERGEN COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS*
Administrative Offices
200 Hackensack Ave.
Hackensack, N.J. 07601
(201)343-6000

BERGEN COUNTY VOCATIONAL-TECHNICAL HIGH SCHOOL
200 Hackensack Ave.
Hackensack, N.J. 07601
(201)343-6000

Air Conditioning
Auto Mechanics
Boiler Room Operation
Data Processing
Electricity
Electronics Technology
Machine Drafting & Design
Sheet Metal

BERGEN COUNTY VOCATIONAL-TECHNICAL SATELLITE SCHOOL - NORTHEAST

55 Walnut St.
Norwood, N.J. 07648
(201) 343-6000

Auto Mechanics
Electromechanical Service
Electronics Technology

BERGEN COUNTY VOCATIONAL-TECHNICAL SATELLITE SCHOOL - NORTHWEST

31 Industrial Ave.
Mahwah, N.J. 07430
(201) 343-6000

Auto Mechanics
Data Processing
Electronics Technology

BERGEN COUNTY VOCATIONAL-TECHNICAL SATELLITE SCHOOL - SOUTH

320 W. Commercial Avenue Extension
Moonachie, N.J. 07874
(201) 343-6000

Auto Mechanics
Building Mechanics
Data Processing
Diesel Mechanics
Electrical-Electronics

BERGEN COUNTY VOCATIONAL-TECHNICAL SATELLITE SCHOOL - WEST

Central E-285 Pascack Rd.
Paramus, N.J. 07652
(201) 343-6000

Auto Mechanics
Data Processing
Electrical
Electronics

BERGEN COUNTY VOCATIONAL SCHOOL - PARAMUS

(Special Needs)
Pascack Road
Paramus, N.J. 07652
(201) 343-6000

Auto Mechanics

BERGEN COUNTY VOCATIONAL SCHOOL - WOOD-RIDGE

(Special Needs)
304 Valley Boulevard
Wood-Ridge, N.J. 07075
(201) 343-6000

Auto Services

BURLINGTON COUNTY

BURLINGTON COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
Woodlane Road
Mount Holly, N.J. 08060
(609)267-4226

Air Conditioning & Refrigeration
Automotive
Computer Technology
Diesel Technology
Drafting & Design
Electrical Construction-Maintenance
Electronics
Plumbing, Heating & Ventilation
Stationary Engineering
Sheet Metal
Welding

JOHN K. OSSI VOCATIONAL-TECHNICAL SCHOOL
Hawkins Road
Medford, N.J. 08055
(609)654-0200

Air Conditioning & Refrigeration
Automotive
Diesel Technology
Electrical Construction
Electronics
Plumbing
Stationary Engineering
Welding

CAMDEN COUNTY

CAMDEN CITY AREA VOCATIONAL-TECHNICAL SCHOOL
7th and Cooper Streets
Camden, N.J. 08010
(609)963-6333
(609)963-7011

Auto Mechanics
Data Processing
Drafting & Design Technology
Electronics Technology

CAMDEN COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
Box 566, Berlin-Cross Keys Road
Sicklerville, N.J. 08081
(609)767-7000

Air Conditioning & Refrigeration
Automatic Heating
Auto Mechanics
Chemistry & Nuclear Technology
Electricity
Electronics
Machine Drafting
Maintenance Mechanics
Plumbing
Stationary Engineering
Sheet Metal
Welding

CAMDEN COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL

Pennsauken Campus
6008 Browning Road
Pennsauken, N.J. 08109
(609)663-1040

Air Conditioning & Refrigeration
Automatic Heating
Auto Mechanics
Electric
Electronics
Machine Drafting & Design
Maintenance Mechanic
Plumbing
Sheet Metal
Welding

LOWER CAMDEN COUNTY REGIONAL AREA VOCATIONAL-TECHNICAL SCHOOL

Turnersville Road
Pine Hill, N.J. 08021
(609)767-8000

Auto Mechanics
Drafting & Design
Electrical Trades
Machine Trades

CAPE MAY COUNTY

CAPE MAY COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL

Crest Haven Road
Cape May Court House, N.J. 08210
(609)465-3064

Air Conditioning & Refrigeration
Auto Mechanics Technology
Construction Technology
Drafting Technology
Electronics Technology
Mechanical Electrical Repair
Service Station Attendant
Welding/Metal Trades

CUMBERLAND COUNTY

CUMBERLAND COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL

R.D. #7, Bridgeton Ave.
Bridgeton, N.J. 08302
(609)451-9000

Air Conditioning & Refrigeration
Auto Mechanics
Data Processing
Diesel Mechanics
Electrical Trades
Plumbing
Welding

ESSEX COUNTY

ESSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
209 Franklin St.
Bloomfield, N.J. 07003
(201)429-8893

Drafting & Design Technology
Electricity
Electronics
Plumbing

ESSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL*
Central Office
90 Washington Street
East Orange, N.J. 07017
(201)961-7880

ESSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
One University Place
Irvington, N.J. 07111
(609)961-7798

Auto Mechanics
Drafting, Mechanical
Electricity
Oil Burner, Air Conditioning
Sheet Metal

ESSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
275 Sussex Ave.
Newark, N.J. 07107
(201)961-7780

Auto Mechanics
Drafting, Mechanical
Electricity

ESSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
291 Cleveland St.
Orange, N.J. 07050
(201)674-7020

Auto Mechanics

GLOUCHESTER COUNTY

DEPTFORD TOWNSHIP AREA VOCATIONAL-TECHNICAL SCHOOL
575 Fox Run Road
Deptford, N.J. 08096

(609)227-6000 Ext. 714

Automotive Trades
Drafting
Electrical Trades
Electronic Data Processing
Machine Trades
Welding

GLOUCHESTER COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
Tanyard Road
Seawall, N.J. 08080
(609)468-1445

Auto Mechanics
Climate Control
Data Processing & Computer
Diesel/Truck Repair
Drafting & Design
Electrical Trades
Electronics
Plumbing & Piping
Power Plant Operation & Maintenance
Sheet Metal
Welding

HUDSON COUNTY

BAYONNE AREA VOCATIONAL-TECHNICAL SCHOOL
West 30th Street
Bayonne, N.J. 07002
(201)437-3000 Ext. 251

Auto Mechanics
Drafting & Design
Electricity
Electrical Maintenace & Repair
Electronics
Refrigeration & Air Conditioning
Welding

HUDSON COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS*
Administriative Office
8511 Tonnelle Ave.
North Bergen, N.J. 07047
(201)854-3900

HUDSON COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS
Jersey City Career Institute
760 Montgomery St.
Jersey City, N.J. 07306
(201)434-0157
(201)434-0158

Air Conditioning & Refrigeration I & II
Electrical Trades I & II
Electronics I & II
Sheet Metal Mechanics I & II
Technical Drafting I & II

HUDSON COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS
North Hudson Center
2000 85th Street
North Bergen, N.J. 07047
(201)854-3900

Air Conditioning & Refrigeration I & II
Electrical Trades I & II
Electronics I & II
Sheet Metal Mechanics I & II
Technical Drafting I & II

HUNTERDON COUNTY

HUNTERDON CENTRAL AREA VOCATIONAL-TECHNICAL SCHOOL
Route #31
Flemington, N.J. 08822
(201)782-5727

Auto Mechanics
Drafting & Design

NORTH HUNTERDON REGIONAL AREA VOCATIONAL-TECHNICAL SCHOOL
Route #31
Annandale, N.J. 08801
(201)735-5191

Air Conditioning & Refrigeration
Auto Mechanics
Data Processing
Electronics
Machine Shop

MERCER COUNTY

MARIE H. KATZENBACH SCHOOL FOR THE DEAF
West Trenton, N.J. 08628
(609)882-2600

Electricity
Machine Shop
Mechanical Drafting
Welding

MERCER COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
1085 Old Trenton Rd.
Trenton, N.J. 08690
(609)586-2121

Assunpink Center Programs
Auto Mechanics
Diesel Mechanics
Electrical Trades
Electronics
Plumbing, Heating, Air Conditioning
Refrigeration
Welding

Special Needs Program
Automotive Aid Shop

MERCER COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
Arthur R. Sypek Center
129 Bull Run Road
Trenton, N.J. 08638
(609)883-8012

Auto Mechanics
Electrical
Plumbing, Heating

Special Needs Program
Automotive Aid Shop

TRENTON CENTRAL AREA VOCATIONAL-TECHNICAL SCHOOL
Greenwood Avenue and Chambers Street
Trenton, N.J. 08609
(609)396-7646 Ext. 263,231,232

Auto Mechanics
Electrical Construction
Plumbing
Sheet Metal
Technical Drafting
Technical Electronics

MIDDLESEX COUNTY

MIDDLESEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS
112 Rues Lane
P.O. Box 220
East Brunswick, N.J. 08816
(201)257-3300

Air Conditioning
Auto Mechanics
Electrical Trades
Electronics
Welding

MIDDLESEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
256 Easton Ave.
New Brunswick, N.J. 08901
(201)247-3832

Auto Mechanics
Drafting & Designs
Electrical Trades
Electronics
Plumbing

MIDDLESEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
618 New Brunswick Ave.
Perth Amboy, N.J. 08861
(201)442-9595

Auto Mechanics
Drafting & Designs
Electrical Trades
Electronics
Sheet Metal
Welding

MIDDLESEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS
21 Sutton Lane
Piscataway, New Jersey 08854
(201)985-0717

Auto Mechanics
Electrical Trades
Plumbing
Refrigeration
Welding

MONMOUTH COUNTY

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
High Street
Allentown, N.J. 08501
(201)431-7942

Auto Mechanics

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
Middle Road
Hazlet, N.J. 07730
(201)431-7942

Air Conditioning
Auto Mechanics

MONMOUTH COUNTY VOCATIONAL SCHOOLS
Dept. of Vocational Education Building
Atlantic Street
Keyport, N.J. 07735
(201)431-7942

Auto Mechanics
Drafting & Design

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
West End Ave.
Long Branch, N.J. 07745
(201)431-7942

Air Conditioning
Auto Mechanics

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
Atlantic Ave.
Middletown, N.J. 07740
(201) 431-7942

Diesel Mechanics

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
Swartzel Drive
Middletown, N.J. 07740
(201) 431-7942

Auto Mechanics
Electrical Trades

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
Heck St.
Neptune, N.J. 07753
(201) 431-7942

Electrical Trades
Plumbing - Sheet Metal

MONMOUTH COUNTY VOCATIONAL SCHOOLS
Dept. of Vocational Education Building
Tinton Ave.
Tinton Falls, N.J. 07724
(201) 431-7942

Auto Mechanics

MONMOUTH COUNTY VOCATIONAL SCHOOL
Dept. of Vocational Education Building
New Bedford Road
Wall Township, N.J. 07719
(201) 431-7942

Auto Mechanics

MORRIS COUNTY

MORRIS COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
400 East Main St.
Denville, N.J. 07834
(201) 627-4600

Air Conditioning, Heating, & Ventilation
Auto Mechanics
Computer Concepts
Electrical Trades
Electronics
Welding

OCEAN COUNTY

OCEAN COUNTY VOCATIONAL-TECHNICAL SCHOOL
Old Freehold Road & Bey Lea
Toms River, N.J. 08753
(201)240-6414

Auto Mechanics
Climate Control
Electro/Mechanical Equipment
Electrical Trades

OCEAN COUNTY VOCATIONAL-TECHNICAL SCHOOL
Bricktown Center
350 Chambersbridge Road
Bricktown, N.J. 08723
(201)920-0050

Auto Mechanics
Climate Control
Electrical Trades
Electro/Mechanical Equipment

OCEAN COUNTY VOCATIONAL-TECHNICAL SCHOOL
Jackson Center
Route 571
Jackson, N.J. 08527
(201)928-3830

Auto Mechanics
Climate Control I & II

PASSAIC COUNTY

HIGHLAND REGIONAL AREA VOCATIONAL-TECHNICAL SCHOOL
Erial Road
Blackwook, N.J. 08012
(609)227-4100

Auto Mechanics
Drafting & Design

PASSAIC COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL

45 Reinhardt Road
Wayne, N.J. 07470
(201)742-6000

Air Conditioning & Refrigeration
Auto Mechanics
Drafting
Drafting Related
Electric Equipment Repair
Electricity
Electronics
Plumbing & Heating
Sheet Metal
Welding

SALEM COUNTY

SALEM COUNTY VOCATIONAL-TECHNICAL SCHOOLS

R.D. #2, Box 350
Woodstown, New Jersey 08098
(609)769-0101

Auto Mechanics
Climate Control (one session only)
Diesel Mechanics
Electrical Technology
Masonry
Plumbing Trades(one session only)

VO-TECH CAREER CENTER

R.D. #2, Box 350
Woodstown, N.J. 08098
(609)769-0101

Auto Mechanics
Climate Control (one session only)
Diesel Mechanics
Electrical Technology
Masonry
Plumbing Trades (one session only)

SOMERSET COUNTY

SOMERSET COUNTY AREA VOCATIONAL-TECHNICAL SCHOOLS

North Bridge Street & Vogt Drive
Bridgewater, N.J. 08807
(201)526-8900

Auto Mechanics
Drafting & Design
Diesel Mechanics
Electricity
Electronics
Plumbing
Welding

SUSSEX COUNTY

SUSSEX COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
105 North Church Road
Sparta, N.J. 07871
(201) 383-6700

Auto Mechanics
Climate Control
Data Processing
Diesel Mechanics
Drafting & Design
Electricity
Electronics
Welding

UNION COUNTY

ARTHUR L. JOHNSON REGIONAL HIGH SCHOOL
Westfield Avenue
Clark, N.J. 07066
(201) 382-0910

Auto Mechanics
Drafting & Design
Machine Shop

DAVID BEARLY REGIONAL HIGH SCHOOL
Monroe Avenue
Kenilworth, N.J. 07033
(201) 272-7500

Auto Mechanics
Drafting & Design

GOVERNOR LIVINGSTON REGIONAL HIGH SCHOOL
Watchung Boulevard
Berkeley Heights, N.J. 07922
(201) 464-3100

Drafting & Design
Electronics Technology

JONATHAN DAYTON REGIONAL HIGH SCHOOL
Mountain Avenue
Springfield, N.J. 07081
(201) 376-6300

Drafting & Design

LINDEN AREA VOCATIONAL-TECHNICAL SCHOOL
128 West St. George Ave.
Linden, N.J. 07036
(201)486-2212

Air Conditioning
Auto Mechanics
Electricity
Heating & Ventilation
Machine Shop
Welding

THOMAS A. EDISON AREA VOCATIONAL-TECHNICAL HIGH SCHOOL
625 Summer Street
Elizabeth, N.J. 07202
(201)353-2200 Ext.362

Auto Mechanics
Electricity
Machine Drafting & Design
Machine Shop

UNION COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
1776 Raritan Road
Scotch Plains, N.J. 07076
(201)889-2000

Civil Technology
Computer Science
Electromechanical Technology
Electronics Technology
Mechanical Technology

UNION COUNTY VOCATIONAL CENTER
1776 Raritan Road
Scotch Plains, N.J. 07076
(201)889-2000

Auto Mechanics
Heating, Ventilating, &
  Air Conditioning
Maintenance Mechanics
Welding

UNION COUNTY REGIONAL AREA VOCATIONAL-TECHNICAL SCHOOL
Mountain Avenue
Springfield, N.J. 07081
(201)376-6300

Auto Mechanics
Drafting & Design

UNION TOWNSHIP AREA VOCATIONAL-TECHNICAL SCHOOL
North 3rd Street
Union, N.J. 07083
(201)688-1200

Auto Mechanics
Data Processing
Drafting & Design
Electricity, Electronics

WARREN COUNTY

WARREN COUNTY AREA VOCATIONAL-TECHNICAL SCHOOL
R.D. #1, Box,168A
Washington, N.J. 07882
(201)689-0122

Auto Mechanics
Data Processing
Electric Trades
Machine Shop
Technical Electronics
Welding

TECHNICAL INSTITUTES

This section lists the Technical Institutes in New Jersey which offer energy-related programs. A certificate is usually awarded at the end of programs. The list is compiled by counties in aphabetical order.

BERGEN COUNTY

BERGEN TECHNICAL TRAINING CENTER
280 Hackensack Ave.
Hackensack, NJ 07601
(201)343-6000

Air Conditioning & Refrigeration
Auto Mechanics
Machine Shop
Sheet Metal
Welding

ESSEX COUNTY

ESSEX COUNTY TECHNICAL CAREERS CENTER
91 West Market St.
Newark, NJ 07103
(201)622-1100

Auto Mechanics
Data Processing
Electricity
Heating, Air Conditioning, & Ventilation
Welding

ESSEX COUNTY AREA TECHNICAL CAREER CENTER
West Essex Center
620 Passaic Ave.
West Caldwell, NJ 07006
(201)575-7740

Auto Repair & Service
Electronics-Electrical
Solar Heating Systems
Small Engines

MERCER COUNTY

ADULT VOCATIONAL-TECHNICAL CENTER
942 Prospect St.
Trenton, NJ 08618
(609)392-0400

Auto Mechanics
Refrigeration & Air Conditioning
Welding

MERCER COUNTY VOCATIONAL EVENING SCHOOL
Assunpink Center
1085 Old Trenton Road
Trenton, NJ 08690
(609) 586-5146

Auto Mechanics
Refrigeration & Air Conditioning
Welding

MIDDLESEX COUNTY

DEVRY TECHNICAL INSTITUTE
479 Green Street
Woodbridge, NJ 07095
(201) 634-9510

Electronics Engineering Technician
Electronics Technician

MORRIS COUNTY

MORRIS COUNTY VO-TECH ADULT EDUCATION
400 East Main St.
Denville, NJ 07834
(201) 627-0114

Auto Mechanics
Electronics-Electricity
Environmental Control
Power Engineering
Welding

PASSAIC COUNTY

PASSAIC SCHOOL OF DRAFTING
657 Main Avenue
Passaic, NJ 07055
(201) 777-4909

Drafting
Solar Energy Design

SOMERSET COUNTY

SOMERSET COUNTY TECHNICAL INSTITUTE
North Bridge Street & Vogt Drive
Bridgewater, NJ 08807
(201)526-8900

Air Conditioning
Automotive Technology
Construction Technology
Diesel Technology
Drafting & Design Technology
Electronics Technology
Heating Technology
Laboratory/Environmental Technology
Mechanical Design Technology
Refrigeration
Welding Technology

SOMERSET COUNTY VOCATIONAL-TECHNICAL SCHOOLS
Adult Continuing Education
P.O. Box 6350
North Bridge & Vogt Drive
Bridgewater, NJ 08807
(201)526-8900

Air Conditioning
Diesel Mechanics
Drafting
Electrical
Oil Burners
Solar Energy

UNION COUNTY

GENERAL TECHNICAL INSTITUTE
Welding Trade School
1118 Baltimore Ave.
Linden, NJ 07036
(201)486-0150

Welding & Blueprint Reading

UNION CO TECHNICAL INSTITUTE
Scotch Plains, NJ 07076
(201)889-2000

Heating Ventilating-Air Conditioning

JUNIOR AND COUNTY/COMMUNITY COLLEGES

The following list contains New Jersey's Junior and County/Community Colleges which have energy-related programs or courses. The programs result in either an Associates Degree (A.A.) or Certificate. The list is arranged by counties, in alphabetical order.

Machine Shop, Carpentry, and Monsonry programs are not included because of their broad scope, although these skills do apply to some energy occupations. Many schools listed do offer these courses.

ATLANTIC COUNTY

ATLANTIC COMMUNITY COLLEGE
Black Horse Pike
Mays Landing, NJ 08330
(609)646-4950

Program (A.A. or Certificate)

Electronic Technology

BURLINGTON COUNTY

BURLINGTON COUNTY COLLEGE
Pemberton-Browns Mills Road
Pemberton, NJ 08068
(609)894-9311

Programs (A.A.)

Computer Science/Data Processing
Electrical-Electronics
Engineering/Technology

CAMDEN COUNTY

CAMDEN COUNTY COLLEGE
P.O. Box 200
Blackwood, NJ 08012
(609)227-7200

Programs (A.A.)

Computer Science/Data Processing
Electrical-Electronics
Engineering/Technology
Mechanical Engineering/Technology

ESSEX COUNTY

ESSEX COUNTY COLLEGE
303 University Ave.
Newark, NJ 07102
(201)877-3000

Programs (A.A.)

Computer Science/Data Processing
Electronic-Electrical
Engineering/Technology

MERCER COUNTY

MERCER COUNTY COMMUNITY COLLEGE
1200 Old Trenton Road
Trenton, NJ 08690
(609)586-4800

Programs (A.A. or Certificate)

Construction/Civil Engineering Technology
Data Processing
Drafting Technology
Electrical Engineering Technology
Engineering Science
Electrical Technology
Electromechanical Engineering Technology
Electronics Technology

MIDDLESEX COUNTY

MIDDLESEX COUNTY COLLEGE
Edison, NJ 08817
(201)548-6000

Programs (A.A.)

Data Processing
Electrical Technology
Electronics Technology

Courses

Workshop Approach to Teach, Train, in Energy

MONMOUTH COUNTY

BROOKDALE COMMUNITY COLLEGE
Newman Springs Road
Lincroft, NJ 07738
(201)842-1900

Programs (A.A.)

Computer Science/Data Processing
Electrical-Electronics
Engineering Technology

Courses

Solar Energy: Its Nature and Use

MORRIS COUNTY

COUNTY COLLEGE OF MORRIS
Route 10 and Center Grove Road
Dover, NJ 07801
(201)361-5000

Programs (A.A.)

Computer Science/Data Processing
Electrical-Electronics Engineering/Technology
Mechanical Engineering/Technology

OCEAN COUNTY

OCEAN COUNTY COLLEGE
College Drive
Toms River, NJ 08753
(201)255-4000

Programs (A.A.)

Electronic Engineering Technology
Computer Science

FOUR-YEAR COLLEGES

This section contains four-year colleges in New Jersey which offer energy-related programs and courses. A Bachelor of Arts or Science Degree (B.A. or B.S.) is usually awarded after the programs. The list is arranged by counties in alphabetical order.

ATLANTIC COUNTY

STOCKTON STATE COLLEGE

Pomona, NJ 08240
(609)652-1776

Programs (B.A., B.S.)

Electronics for Non-Scientists
Information and Systems Sciences
International Energy Politics
The History and Future of Oil

Courses

Solar Energy

BERGEN COUNTY

FAIRLEIGH DICKINSON UNIVERSITY

Teaneck Campus
1000 River Road
Teaneck, NJ 07666

Programs (B.A., B.S.)

Computer Science/Data Processing
Electrical-Electronics Engineering/Technology
Industrial Engineering/Technology
Mechanical Engineering/Technology

Courses

Solar Energy

RAMAPO COLLEGE OF NEW JERSEY

Mahwah, NJ 07430
(201)825-2800

Programs (B.A., B.S.)

Alternative Energy

Courses

Alternative Energy Workshop
Energy Efficient Solar Design
Energy, Power and the Environment
Alternative Energy Design
Alternative Energy Sources

ESSEX COUNTY

UPSALA COLLEGE
East Orange, NJ 07019
(201)266-7000

Programs (B.A., B.S.)	Courses
Computer Science	Electronics and Instrumentation
Electrical-Electronics Engineering/Technology	Atomic and Nuclear Physics
Industrial Engineering Technology	

MONTCLAIR STATE COLLEGE
Upper Montclair, NJ 07043
(201)893-4000

Programs (B.A., B.S.)	Courses
Industrial Powers	Alternate Energy Conversion Systems
	Wind Energy Conversion Systems

NEW JERSEY INSTITUTE OF TECHNOLOGY
323 High Street
Newark, NJ 07102
(201)645-5321

Programs (B.A., B.S.)	Courses
Computer and Information Science	Introduction to Solar Energy
Electrical Engineering	Solar Energy Applications
Electrical Engineering Technology	Solar Heating Design
Mechanical Engineering & Technology	

GLOUCESTER COUNTY

GLASSBORO STATE COLLEGE
Glassboro, NJ 08028
(609)445-5000

Programs (B.A.)	Courses
Energy and Transportation Concentration	Advanced Solar Energy Systems
	Solar Energy

HUDSON COUNTY

STEVENS INSTITUTE OF TECHNOLOGY
Castle Point Stateion
Hoboken, NJ 07030
(201)420-5100

Programs (B.A., B.S.)

- Electrical Engineering
- Mechanical Engineering
- Technology and Society

Courses

- Reactor Design
- Physical Electronics and Instrumentation
- Elements of Nuclear Physics and Nuclear Reactors
- Introduction to Nuclear Physics and Nuclear Reactors

MERCER COUNTY

TRENTON STATE COLLEGE
P.O. Box 940
Trenton, NJ 08625
(609)771-1855

Programs (B.A., B.S.)

- Electrical-Electronics Engineering/Technology
- Industrial Engineering/Technology

PRINCETON UNIVERSITY
Princeton, NJ 08540
(609)452-3000

Programs (B.A., B.S.)

- Electrical Engineering and Computer Science
- Energy Conversion and Resources

Courses

- Characteristics and Technology of Materials
- Energy and the Environment: A Quantitative Approach
- Introduction to Solar Thermal Engineering
- Physical Processes of Energy Conversion
- Special Topics in Power & Propulsion
- States of Matter

MIDDLESEX COUNTY

RUTGERS UNIVERSITY NEW BRUNSWICK
New Brunswick, NJ 08903
(201)932-1766

Program (B.A., B.S.)

Data Processing

Courses

Solar Thermal Energy, Collection and Storage

MONMOUTH COUNTY

MONMOUTH COLLEGE
West Long Branch, NJ 07764
(201)222-6600

Programs (B.A., B.S.)

Computer Science
Electronic Engineering

Courses

Energy and Environmental Problems
Energy, Ecology, Economy

OCEAN COUNTY

GEORGIAN COURT COLLEGE
Lakewood, NJ 08701
(201)364-2200

Courses

Nuclear Physics
Radioisotope Techniques

UNION COUNTY

KEAN COLLEGE OF NEW JERSEY
Morris Ave.
Union, NJ 07083
(201)527-2000

Programs (B.A., B.S.)

Industrial Technology
Mechanical Contracting Technology Option

Courses

Building of Environmental Systems Design I & II
Building Piping Systems Design
Circuit Analysis I & II
Design Fundamentals
Electronic Drafting
Elements of Drafting
Elements of Elctronics
Elements of Metalworking

- Elements of Power
- Fabrication & Development of Electronic Devices
- Forge & Foundry Practice
- General Electricity-Electronics
- Industrial Radiography
- Interpretation of Construction Drawings & Specifications
- Machine Drafting and Design
- Metal Fabrication
- Model Design
- Technical Drafting
- Ultrasonic Testing
- Welding Technology

NATIONAL ENERGY EDUCATIONAL PROGRAMS

This section identifies national colleges and universities which offer energy-related programs. The lists include: 1) Mining Engineering and Technology; 2) Nuclear Engineering and Technology; 3)Ocean Engineering and Technology; 4) Petroleum Engineering and Technology; and 5) Solar Programs.

Engineering and Engineering Technology and Energy Management are two programs which were not included. Engineering and Engineering Technology encompass a wide range of programs. A list of accredited programs leading to degrees can be obtained from:

National Society of Professional Engineers
2029 K Street, NW
Washington, D.C. 20006

This contains programs such as Mechanical, Electrical, Industrial, Civil, Chemical, Aeronautical and many others. Their list is compiled in alphabetical order by state schools and also by 115 engineering programs.

There are ten institutions and seven in planning which offer Energy Management Programs. Also 303 other universities and colleges do give one or more energy management courses. Energy-Management Program was not included in a list because out of the ten schools only two offered 4 year degrees, Sonoma State College in California and Eastern Illinois University in Illinois. The others only offered M.A. and Ph.D. degrees.

MINING ENGINEERING AND TECHNOLOGY

This list identifies national colleges and universities offering programs in either mining engineering or mining technology. They are arranged by states in alphabetical order.

Associates Degree (A.A.) is earned after a two year program in Mining Technology. Applicable courses are Mine Plant Design, Physical Geology, Mine Ventilation, Mineral Processing, Mine Systems Design and Analysis and others.

Bachelor of Science (B.S.) degree is acquired after a 4 year program in Mining Engineering. Courses include: Unit Mining Operations I & II; Coal Mining, Techniques and Evaluation; Mine Design-Surface & Underground; Mine Surveying; Decision Analysis, Rock Mechanics I & II and many others.

ALABAMA

The University of Alabama
University, AL 35486
(B.S.)

ALASKA

The University of Alaska
Fairbanks, AK 99701
(B.S.)

ARIZONA

Arizona College of Technology
Mammoth, AZ 85618
(602)487-2351
(A.A.)

University of Arizona
Tucson, AZ 85721
(B.S.)

Central Arizona College
Coolidge, AZ 85228
(602)723-4141
(A.A.)

Eastern Arizona College
Thatcher, AZ 85552
(602)425-6695
(A.A.)

CALIFORNIA

University of California
Berkeley, CA 94720
(B.S.)

COLORADO

Colorado Mountain College
P.O. Box 1762
Rifle, CO 81650
(303)625-1831
(A.A.)

Colorado School of Mines
Golden, CO 80401
(B.S.)

IDAHO

University of Idaho
Moscow, ID 83843
(B.S.)

ILLINOIS

John Logan College
Cartersville, IL 62918
(618)985-3741
(A.A.)

ILLINOIS (CONT.)

Rend Lake College
Ina, IL 62846
(618)437-5321
(A.A.)

Southeastern Illinois College
Harrisburg, IL 62946
(618)252-6376
(A.A.)

Southern Illinois University-Carbondale
Carbondale, IL 62901
(618)262-8641
(A.A.)

INDIANA

Indiana State University-Evansville
Evansville, IN 47712
(812)464-1881
(A.A.)

Indiana Vocational Technical College
Terre Haute, IN 47802
(812)299-1121
(A.A.)

KENTUCKY

Hazard Community College
Hazard, KY 47401
(606)436-5721
(A.A.)

University of Kentucky
Lawrence, KY 66045
(B.S.)

Lees Junior College
Jackson, KY 41339
(606)666-7521
(A.A.)

Madisonville Community College
Madisonville, KY 42431
(502)821-2250
(A.A.)

Morehead State University
Morehead, KY 40351
(606)783-2211
(A.A.)

Pikeville College
Pikeville, KY 41501
(606)432-3161
(A.A.)

Southeast Community College
Cumberland, KY 40523
(606)573-9654
(A.A.)

MICHIGAN

Michigan Technological University
Houghton, MI 49931
(B.S.)

MINNESOTA

University of Minnesota
Minneapolis, MN 55455
(B.S.)

MISSOURI

University of Missouri at Rolla
Rolla, MO 65401
(B.S.)

MONTANA

Montana College of Mineral Science and Technology
Butte, MT 59701
(B.S.)

NEVADA

University of Nevada
Reno, NV 89507
(B.S.)

NEW MEXICO

New Mexico Institute of
Mining and Technology
Socorro, NM 87801
(B.S.)

NEW YORK

Columbia University
New York, NY 10027
(B.S.)

OHIO

Belmont Technical College
St. Clairsville, OH 43950
(614)695-9500
(A.A.)

PENNSYLVANIA

Pennsylvania State University-
Altoona
Altoona, PA 16603
(814)946-4321
(A.A.)

Pennsylvania State University-
Fayette
Uniontown, PA 15401
(412)437-2801
(A.A.)

Pennsylvania State University
University Park, PA 16802
(B.S.)

SOUTH DAKOTA

South Dakota School of
Mines and Technology
Rapid City, SD 57701
(B.S.)

UTAH

College of Eastern Utah
Price, UT 84501
(801)637-2120
(A.A.)

University of Utah
Salt Lake City, UT 84112
(B.S.)

VIRGINIA

Mountain Empire Community
College
Big Stone Gap, VA 24219
(703)523-2400
(A.A.)

Southwest Virginia Community
College
Richlands, VA 24641
(703)964-2555
(A.A.)

Virginia Polytechnic Institute and State University
Blacksburg, VA 24061
(B.S.)

WASHINGTON

University of Washinton
Seattle, WA 98195
(B.S.)

WEST VIRGINIA

Alderson-Broaddus College
Philippi, WV 26416
(304)457-1700
(A.A.)

Bluefield State College
Bluefield, WV
(304)325-7102
(A.A.)

WEST VIRGINIA (CONT.)

Fairmont State College
Fairmont, WV 26554
(304)367-4000
(A.A.)

Southern West Virginia
Community College
Williamson, WV 25661
(304)235-2800
(A.A.)

West Virginia Institute
of Tehcnology
Montgomery, WV 25136
(304)442-3071
(A.A.)

West Virginia University
Morgantown, WV 28506
(B.S.)

WISCONSIN

University of Wisconsin
Madison, WI 53706
(B.S.)

University of Wisconsin
Platteville, WI 53818
(B.S.)

WYOMING

Casper Community College
Casper, WY 82601
(307)268-2110
(A.A.)

Sheridan College
Sheridan, WY 82801
(307)674-6446
(A.A.)

NUCLEAR ENGINEERING AND TECHNOLOGY

This list identifies national colleges and universities offering programs in Nuclear Engineering or Nuclear Technology. The list is arranged by states, in alphabetical order.

Nuclear Technology is a two year program, giving an Associates Degree (A.A.). Pertinent courses include Nuclear Reactions; Containment and Isolation; Reactor Vessel; Fuel and Refueling; and others.

Nuclear Engineering results in a Bachelor of Science (B.S.). Most schools which offer a B.S. degree also have graduate studies (M.S. and Ph.D.). Courses in the Nuclear Engineering program include: Nuclear Reactor Theory I & II; Nuclear Safety; Radiation Effects; Nuclear Reactor Engineering; Nuclear Fuel Cycles; and many others.

ALABAMA

Tuskegee Institute
(Radiation Safety Comm.)
Tuskegee Institute, AL 36088
(A.A.)

ARIZONA

University of Arizona
Tucson, AZ 85721
(B.S.)

CALIFORNIA

University of California
Berkeley, CA 94720
(B.S.)

Chabot College
25555 Hesperian Boulevard
Hayward, CA 94545
(A.A.)

Los Angeles City College
855 North Vermont Avenue
Los Angeles, CA 90029
(A.A.)

CONNETICUT

Hartford State Technical College
401 Flatbush Avenue
Hartford, CT 06106
(A.A.)

FLORIDA

Central Florida Community College
(Raidological Health Technology)
P.O. Box 1388
Oscala, FL 32670
(A.A.)

University of Florida
Gainesville, FL 32611
(B.S.)

IDAHO

Eastern Idaho Vocational Technical School
2299 East 17th Street
Idaho Falls, ID 83401
(A.A.)

IOWA

Iowa State University
Ames, IA 50010
(M.S.)

KANSAS

Kansas State University
Manhattan, KS 66506
(B.S.)

MARYLAND

University of Maryland
College Park, MD 20742
(B.S.)

MASSACHUSETTS

Wentworth Institute
Boston, MA 02115
(A.A.)

MICHIGAN

University of Michigan
Ann Arbor, MI 48104
(B.S.)

MISSISSIPPI

Mississippi Gulf Coast Junior College
Jackson County Campus
(Nuclear Radiation Control Technology)
Gautier, MS 39553
(A.A.)

Mississippi State University
Mississippi State, MS 39762
(B.S.)

MISSOURI

University of Missouri
Rolla, MO 65401
(B.S.)

NEW YORK

Columbia University
New York, NY 10027
(B.S.)

Resselaer Polytechnic Institute
Troy, NY 12181
(M.S.)

State University of New York at Buffalo
Buffalo, NY 14214
(B.S.)

NORTH CAROLINA

North Carolina State University at Raleigh
Raleigh, NC 27607
(B.S.)

OHIO

Air Force Institute of Technology
Wright Paterson Air Force Base, OH 45433
(M.S.)

Terra Technical Institute
(Nuclear Power Technology)
1220 Cedar Street
Freemont, OH 43420
(A.A.)

OKLAHOMA

Oklahoma State University-
Main Campus
(Nuclear Technology)
900 North Portland
Stillwater, OK 74074
(A.A.)

OREGON

Oregon State University
Corvallis, OR 97331
(B.S.)

PENNSYLVANIA

Community College of Beaver County
(Nuclear QA Technology)
Monaca, PA 15061
(A.A.)

Pennsylvania State University
Hazelton Campus
(Nuclear Engineering Technology)
Hazelton, PA 18201
(A.A.)

Pennsylvania State University
Altoona Campus
(Nuclear Engineering Technology)
Altoona, PA 16601
(A.A.)

Pennsylvania State University
University Park, PA 16802
(B.S.)

SOUTH CAROLINA

Aiken Technical Education
Center
(Nuclear Engineering Technology)
P.O. Drawer 696
Aiken, SC 29801
(A.A.)

Florence-Darlington Tech.
College
(Nuclear Engineering Technology)
P.O. Drawer 8000
Florence, SC 29501
(A.A.)

Tri-County Technical
College
P.O. Box 87
Pendleton, SC 29670
(A.A.)

TENNESSEE

Chattanooga State Tech.
Community College
Division of Life & Health
Sciences
4501 Amnicola Highway
Chattanooga, TN 37406
(A.A.)

Memphis State University
(Center for Nuclear Studies)
Memphis, TN 38152
(A.A.)

Roane State Community
College
Harriman, TN 37748
(A.A.)

University of Tennessee at
Knoxville
Knoxville, TN 37916
(B.S., M.S.)

TEXAS

Texas A & M University
College Station, TX 77843
(B.S., M.S.)

TEXAS (CONT.)

Texas State Technical
Institute
James Connally Campus
(Nuclear Technology)
Waco, TX 76705
(A.A.)

Texas State Technical
Institute
Rio Grande Campus
Harlingen, TX 78550
(A.A.)

VIRGINIA

University of Virginia
Charlottesville, VA 22901
(B.S.)

WASHINGTON

Columbia Basin College
(Nuclear Technology)
2600 North 20th
Pasco, WA 99301
(A.A.)

Shoreline Community College
Seattle, WA 98063
(A.A.)

WISCONSIN

Lakeshore Technical
Institute
(Health Occupations)
1290 North Avenue
Cleveland, WI 53015
(A.A.)

University of Wisconsin
Madison, WI 53706
(B.S.)

OCEAN ENGINEERING

This list identifies national universities and colleges which offer a program in Ocean Engineering. There is no Associate Degree given, but programs result in a Bachelor of Science (B.S.) or Master of Science (M.S.) degree. Courses include: Ocean Engineering I & II, Underwater Instrument Systems and Lab; Principals of Naval Architecture; Power Systems I, II, & III; and many others. The list is compiled by states, and in alphabetical order.

CALIFORNIA

California State University
at Long Beach
Long Beach, CA 90840
(B.S.)

CONNETICUT

United States Coast Guard
Academy
New London, CT 06320
(B.S.)

FLORIDA

Florida Atlantic University
Boca Raton, FL 33431
(B.S.)

HAWAII

University of Hawaii
Honolulu, HI 96822
(M.S.)

MASSACHUSETTS

Massachusetts Unstitute
of Technology
Cambridge, MA 02139
(B.S.)

MARYLAND

United States Naval
Academy
Annapolis, MD 21402
(B.S.)

PETROLEUM ENGINEERING AND TECHNOLOGY

This list identifies national colleges and universities offering programs in either petroleum engineering or petroleum technology. They are arranged by states, in alphabetical order.

Petroleum Technology is either a one or two year program offering an Associates Degree (A.A.). Courses include Petroleum Development, Drilling Fluids and Equipment, Natural Gas Production, Petroleum Field and Lab Methods and Equipment, Petroleum Property Management and others.

Petroleum Engineering program results in a Bachelor of Science (B.S.) in engineering degree. Most schools which offer B.S. degrees also have graduate programs (M.S. and Ph.D.). Courses for engineering majors include Exploration and Drilling, Petroleum Reservoir Engineering, Drilling and Production Design, Computer Application, Natural Gas Engineering and Lab and many others.

ALABAMA

The University of Alabama
University, AL 35486
(B.S., M.S.)

CALIFORNIA

The University of California
Berkeley, CA 94720
(B.S., M.S., Ph.D.)

The University of Southern
California
Los Angeles, CA 90007
(B.S., M.S., Ph.D.)

Stanford University
Stanford, CA 94305
(B.S., M.S., Ph.D.)

COLORADO

Colorado School of Mines
Golden, CO 80401
(B.S., M.S., Ph.D.)

ILLINOIS

Lincoln Trail College
Route #3
Robinson, IL 62454
(A.A.)

KANSAS

The University of Kansas
Lawrence, KS 66044
(B.S., M.S., Ph.D.)

LOUISIANA

Delgado Junior College
New Orleans, LA
(A.A.)

Louisiana State University
Baton Rouge, LA 70803
(B.S., M.S.)

Louisiana Tech University
Ruston, LA 71270
(B.S., M.S., Ph.D.)

LOUISIANA (CONT.)

University of Southwestern
Louisiana
Lafayette, LA 70501
(B.S., M.S.)

MICHIGAN

Northwestern Michigan College
Traverse City, MI 49684
(A.A.)

MISSISSIPPI

Mississippi State University
State College, MS 39762
(B.S., M.S., Ph.D)

MISSOURI

University of Missouri
at Rolla
Rolla, MO 65401
(B.S., M.S., Ph.D.)

MONTANA

Montana College of Mineral
Science and Technology
Butte, MT 59701
(B.S., M.S.)

NEW MEXICO

New Mexico Institute of
Mining and Technology
Socorro, NM 87801
(B.S., M.S.)

OHIO

Hocking Technical College
Nelsonville, OH
(A.A.)

Marietta College
Marietta, OH 45750
(B.S.)

Muskingham Area Technical
College
1555 Newark Road
Zanesville, OH 43701
(614)454-2501
(A.A.)

OKLAHOMA

The University of Oklahoma
Norman, OK 73069
(B.S., M.S., Ph.D)

University of Tulsa
Tulsa, OK 74104
(B.S., M.S.)

PENNSYLVANIA

Butler County Community
College
Butler, PA 16001
(A.A.)

Pennslyvania State University
University Park, PA 16802
(B.S., M.S., Ph.D.)

University of Pittsburg
Pittsburg, PA 15213
(B.S., M.S., Ph.D.)

TEXAS

Lee College
Baytown, TX 77520
(A.A.)

Midland College
3600 North Garfield
Midland, TX 79701
(A.A.)

Texas A & M University
College Station, TX 77843
(B.S., M.S., M.E., Ph.D.)

TEXAS (CONT.)

Texas College of Arts
and Industries
Kingsville, TX 78363
(B.S., M.S.)

Texas Tech University
Lubbock, TX 79409
(B.S., M.S., Ph.D.)

University of Texas
Austin, TX 78712
(B.S., M.S., Ph.D.)

Western Texas College
Snyder, TX 79549
(A.A.)

WEST VIRGINIA

West Virginia University
Morgantown, WV 26506
(A.A.)

WYOMING

Casper College
Casper, WY 82601
(A.A.)

The University of Wyoming
Laramie, WY 82071
(B.S., M.S.)

SOLAR PROGRAMS

This list identifies national colleges and universities which offer solar programs. The list is arranged by states in alphabetical order.

Several schools offer one or two year technical program resulting in a certificate or Associates degree (A.A.). Courses include: Energy Science I & II; Collectors and Energy Storage; Solar Heating and Cooling Systems; and several others.

There are no universities or colleges which offer a four year Solar Engineering Program. However, students can major in engineering programs (for example, Mechanical Engineering) and have a solar emphasis. Courses of interest include: Control Systems Design; Principals of Design; Heat Transfer; Energy Technology; and many others.

There are also Home Study Programs. The courses are usually 11 lessons that take 10 to 12 weeks to complete. People interested in a home study program should contact:

Director of Education
NHAM Home Study Institute
1661 West Henderson Road
Colombus, Ohio 43220

For further information on solar training and education write:

The National Training Fund
1900 "L" Street, NW
Suite 405
Washington, D.C. 20036

The National Solar Heating
and Cooling Info. Center
P.O. Box 1607
Rockville, Maryland 20850

Energy Conservation and Solar
Application Training Center
New Castle County
Vocational-Technical School
1417 Newport Road
Wilmington, Delaware 19804

ARIZONA

Arizona State University
Tempe, AR 85281
(B.S.)

University of Arizona
Tuscon, AR 85721
(B.S.)

CALIFORNIA

Cerro Coso Community College
Ridgecrest, CA 93555
(A.A.)

San Jose State University
San Jose, CA 95192
(B.S.)

CALIFORNIA (CONT.)

Solar Technology Dept.
San Jose City College
2100 Moor Park Ave.
San Jose, CA 95128
(A.A.)

World College West
San Rafael, CA 94902
(B.S.)

COLORADO

Colorado Technical College
655 Elkton Drive
Colorado Springs, CO 80907
(A.A., B.A.)

Colorado State University
Fort Collins, Colorado 80521
(B.S.)

Community College of Denver
Red Rock Campus
12600 West 6th St.
Golden, CO 80401
(A.A.)

University of Colorado
Boulder Campus
Boulder, CO 80302
(B.S.)

University of Colorado
Colorado Springs Campus
Colorado Springs, CO 80903
(B.S.)

University of Colorado
Denver Campus
Denver, CO 80220
(B.S.)

CONNECTICUT

Hartford State Technical College
Hartford, CT 06106
(B.S.)

FLORIDA

Florida Technological University
Orlando, FL 32816
(B.S.)

GEORGIA

North Georgia Vo-Tech School
Lake Burton Road, Georgia 197
Clarksville, GA 30823
(A.A.)

IDAHO

Eastern Idaho Vocational-Technical School
2299 East 17th Street
Idaho Falls, ID 83401
(B.S.)

ILLINOIS

Bradley University
Peoria, IL 61606
(B.S.)

INDIANA

Indiana Vocational-Technical College
Richmond, IN 47374
(B.S.)

IOWA

Trade and Industrial Occupation Division
Scott Community College
Belmont Road
Bettendorf, IA 52722
(A.A.)

Scott Community College
E. Iowa District
Davenport, IA 52801
(A.A.)

KANSAS

Kansas Technical Institute
Salina, KS 67401
(B.S.)

MARYLAND

Division of Engineering Technology
Springfield Technical Community College
Armory Square
Springfield, MA 01105
(A.A.)

MASSACHUSETTS

Franklin Institute of Boston
Boston, MA 02116
(B.S.)

Hampshire College
Amherst, MA 01002
(B.S.)

MIT
Cambridge, MA 02139
(B.S.)

Northeastern University
Boston, MA 02115
(B.S.)

Worcester Polytechnic Institute
Worcester, MA 01609
(B.S.)

MICHIGAN

Delta College
University Center, MI 48710
(A.A.)

Grand Valley State
Allendale, MI 49401
(B.S.)

NEW YORK

State University of New York
College of Plattsburg
Plattsburg, N.Y. 12901
(B.S.)

RHODE ISLAND

New England Institute of Technology
Providence, RI 02907
(B.S.)

SOUTH CAROLINA

Florence-Parlington Technical College
P.O. Drawer 8000
Florence, SC 29501
(A.A.)

York Technical College
U.S. 21 Bypass
Rock Hill, SC 29730
(A.A.)

TENNESSEE

University of Tennessee
Knoxville, TN 37916
(B.S.)

TEXAS

Navarro College
Highway 31 West
Corsicana, TX 75110
(B.S.)

Trinity University
San Antonio, TX 78212
(B.S.)

VERMONT

Marlboro College
Marlboro, VT 05344

WISCONSIN

University of Wisconsin
Madison, WI 53706
(B.S.)

WYOMING

Sheridan College
Sheridan, WY 82801
(A.A.)

READINGS FOR STUDENTS, GUIDANCE COUNSELORS, AND TEACHERS

This reading list has energy-related materials for students, teachers and guidance counselors. The reading list has been divided into five sections: 1) Background and Informative Readings; 2) Bibliographies, Catalogs, and Directories; 3) Booklets and Pamphlets; 4) Journals, Magazines, and Periodicals; and 5) References to Education Options. Each list is arranged in alphabetical order by titles.

BACKGROUND AND INFORMATIVE READINGS

Advanced Wind Energy Systems: Workshop Proceedings, Stockholm, August 29-30, 1974 (1976)
Editor: Olle Ljungstrom
Liber Tryck, Stockholm, Sweden

Building The Solar Home: Some Early Lessons Learned (1978)
Report No. 2 HUD-PDR-296-1
U.S. Dept. of H.U.D., Solar Demonstration Program, Washington, D.C.

Available from:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock No. 023-000-004551)

Coal Conversion Technology (1976)
Authors: I. Howard-Smith and G.J. Werner
Noyes-Data Corporation, Park Ridge, NJ

Coal Task Force Report on Education and Training (1979)
(Draft)
Author: Coal Task Force

Available from:
Education Program Division, Dept. of Energy, Washington, D.C.
(202)252-6482

The Conservation Response: Strategies For The Design And Operation Of Energy-Using Systems (1976)
Author: Lloyd J. Dumas
Lexington Books, Lexington, MA

Conservation Task Force Report On Education And Training (1979) (Draft)
Author: Conservation Task Force

Available from:
Education Program Division, Dept. of Energy, Washington, D.C.
(202)252-6482

Effective Utilization Of Solar Energy To Produce Clean Fuel (1974)
Authors: John A. Alech, Jr. and E. Robert
Stanford Research Institute, Menlo Park, CA

Energy For Tomorrow (1975)
Author: H. Philip
University of Washington, Seattle, Washington

Energy Primer: Solar, Water, Wind, and Biofuels (1978)
Editors: Richard Merrill and Thomas Gage
Dell Publishing Co., Inc., One Dag Hammarskjold Plaza, New York, New York 10017

Energy-Related Technology Programs In Community And Junior Colleges: An Analysis Of Existing And Planned Programs (1976)
Author: John R. Daggette
Oak Ridge Associated Universities, Manpower Development Division, Oak Ridge, TN

Available from:
National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161

Energy Research And Development (1975)
Authors: J.H. Holloman and M. Grenon
Ballinger Publishing Co., Cambridge, MA

Energybook #1 -Natural Sources And Backyard Applications (1975)
Editor: John Prenis
Running Press, 38 South Nineteenth Street, Philadelphia, PA 19103 (215)567-5080
Price: $4.00

Heat Pipe Theory And Practice: A Sourcebook (1976)
Author: S.W. Chi
Hemisphere Publishing Corp., Washington, D.C.

National Plan For Energy Research, Development and Demonstration (1976)
ERDA 76-1

Available from:
Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C.

Nuclear Power (1976)
Author: Walter C. Patterson
Penguin Books, Ltd., New York, NY 10022

Nuclear Taskforce Summation (1979)
(Draft)
Author: The Nuclear Taskforce Committee

Available from:
Education Programs Division, D.O.E., Washington, D.C.
(202)252-6482

Petroleum Economics And Engineering: An Introduction (1976)
Author: Abdel-Aal, K. Hussein, and R. Schnelzlee
Marcel Decker, New York

Petroleum Refining: Technology And Economics (1975)
Authors: J.H. Gary and G.E. Handwerk
Marcel Decker, New York

Public Energy Education - Issues For Discussion (1979)
Author: U.S. D.O.E.

Available from:
Intergovernmental and Institutional Relations, Office of Education, Business and Labor Affairs, Educational Program Division,
Washington, D.C.

Oil And Gas Production Handbook (1975)
Author: J.E. Kastrop
Energy Communications, Dallas, Texas

Oil and Gas Taskforce Report (1979)
(Draft)
Author: The Petroleum Taskforce
Dept. of Energy, Washington, D.C.

Available from:
Education Programs Division, D.O. E., Washington, D.C.

Solar Energy. The Awakening Science (1976)
Author: D. Behrman
Little Brown and Company, Boston, MA
Price: $12.50

Solar Energy Source Book (1977)
Author: C.W. Martz
Solar Energy Institute of Amarica, P.O. Box 9352, Washington, D.C.
Price: $12.00

Solar Energy Taskforce Report On Education and Training (1979) (Draft)
Author: Solar Energy Taskforce

Available from:
Education Program Division, D.O.E., Washington, D.C.

The Status Of Energy Management Academic Programs in U.S. Institutions of Higher Education (1978)
Authors: Lawrence Eisenberg, Court Daspit, and Glenn Shimamoto

Available from:
National Technical Informantion Service, U.S. Dept. of Commerce,
Springield, VA 22161
Price: $4.50 paper copy
$3.00 microfiche

The Student Scientist Explores Energy And Fuels (1976)
Author: W.A. Kaplan
Richard Rosen Press, New York

BIBLIOGRAPHIES, CATALOGS, AND DIRECTORIES

ARI Publications
Air Conditioning & Refrigeration Institute
1815 North Fort Myer Drive, Arlington, VA 22209

Bibliography Of Energy Resources (1977)
In: H. Gordon and R. Meador (editors)
Perspectives in the Energy Crisis, Volume 2
Ann Arbor Science, Ann Arbor, Michigan

Directory Of Accredited Private Trade & Technical Schools
National Association of Trade and Technical Schools
2021 L Street, N.W., Washington, D.C. 20036

Ears - Energy Catalog No. Ten
Box 545
La Veta, Colorado 81055

Energy Information Locator (1975)
New York: Environment Information Center, Energy Reference Dept.

Energy Reference Sources (1975)
Author: Kitty Hsieh
Bibliography Series No. Ten
Oregon State University Press, Oregon State University,
101 Waldo Hall, Corvallis, Oregon 97331
Price: $2.00

Energy Research and Development: A Selected Reading List (1973)
Editors: M.P. Guthrie, E.E. Huber, and G.A. Norwood
Oak Ridge TN: Oak Ridge National Laboratory for U.S. Atomic Energy Commission

Handbook Of Trade And Technical Careers And Training (1978-1979 Ed.)
National Association of Trade & Technical Schools
2120 K Street, N.W., Washington, D.C. 20006 (202)296-8892
Price: Free

Hydrogen Energy: A Bibliography With Abstracts (1974)
Editors: Kenneth E. Cox
Cumulative Volume, 1953
University of New Mexico, Albuquerque, New Mexico

Looking For Energy? A Guide To Information Resources
American Petroleum Institute, 2101 L Street, Northwest, Washington, D.C. 20037

Movies About Oil (1978)
15th Edition
American Petroleum Institute, 2101 L. Street, Northwest, Washington, D.C. 20037
Price: Free

Reading List For Solar Energy (1978)
DC 107, 8th Edition
National Solar Heating & Cooling Information Center,
P.O. Box 1607, Rockville, Maryland 21850 call toll free:
(800)523-2929

Selected Department Of Energy Publications (1978)
United States Department of Energy, Office of Public Affairs,
Washington, D.C.

Solar Energy Books (1977)
National Solar Energy Education Campaign, International Compendium, Beltsville, Maryland
Price: $4.50

Solar Industry Index (1977)
Solar Energy Industries Association, 1001 Connecticut Ave., N.W., Ste. 632, Washington, D.C. 20036
Price: $8.00 + $2.00 mailing

Solar Energy and Research Directory (1977)
Ann Arbor Science Special Task Group, Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan
Price: $9.95

BOOKLETS AND PAMPHLETS

Coal
National Coal Association, 1130 17th Street Northwest, Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only Level 7-12

Coal and the Environment
National Coal Association, 1130 17th Street Northwest, Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only

Coal and Research
National Coal Association, 1130 17th Street Northwest, Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only.

Coal in Today's World
National Coal Association, 1130 17th Street Northwest, Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only Level 1-6

Diesel Fuel-Questions/Answers
#802-15790
American Petroleum Institute, Publications and Distribution Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .15¢

Distillation Chart
American Petroleum Institute, Publications and Distribution Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .10¢

Energy Conservation: Experiments You Can Do
Edison Electric Institute, 90 Park Avenue, New York, NY 10016
(212) 573-8700
Price: Free, single copy only

Energy Conservation Fact Sheets
"Homes and Buildings," "Industry," and "Transportation"
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830 (615) 483-8611
Price: Free

Energy Conservation In The Home
U.S. Department of Energy, Educational Programs Branch, Office
of Public Affairs, 20 Massachusetts Avenue, N.W., Washington,
D.C. 20545 (202) 376-4074
Price: Free

Energy Conservation Tips
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: Free

Energy Conservation Pamphlets
"Energy Technology," "Energy Savings Through Automatic Thermostat Controls," "Tomorrow's Cars," "Waste Heat Recovery: More Power From Fuels," "Fuel Cells: A New Kind of Power Plant," and "Energy Storage"
U.S. Department of Energy, Educational Programs Branch,
Office of Public Affairs, 20 Massachusetts Avenue, N.W.,
Washington, D.C. 20545 (202) 376-4074
Price: Free

Energy Efficiency Sharing
Department of Commerce, Washington, D.C. 20230
(202) 783-9200
Price: 25¢

Energy And Our Environment
Union Oil Company of California, Corporate Communications
Department, Box 7600, Los Angeles, CA 90051 (213) 486-6815
Price: Free

Energy Pamphlets
"Solar Energy," "Solar Powered Irrigation," "Solar Energy for Heating and Cooling," "I've Got A Question About Using Solar Energy," and "Solar Electricity from Thermal Conversion"
U.S. Department of Energy, Educational Programs Branch,
20 Massachusetts Avenue, N.W., Washington, D.C. 20545
(202) 376-4074
Price: Free

Energy-Saving Tips For Home Lighting

Edison Electric Institute, 90 Park Avenue, New York, NY 10016
(212) 573-8700
Price: Free, single copy only

Experimental Electric Vehicle

U.S. Department of Energy, Educational Programs Branch,
20 Massachusetts Avenue, N.W., Washington, D.C. 20545
(202) 376-4074
Price: Free

Facts About Oil

American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .35¢

Fact Sheets on Supplementary Energy Sources

"Fuels from Plants (Bioconversion)," "Fuels from Wastes (Bioconversion)," "Wind Power," "Electricity from the Sun 1 (Solar Photovoltaic Energy)," "Electricity from the Sun 11 (Solar Thermal Energy Conversion)," "Solar Sea Power (Ocean Thermal Energy Conversion)," "Solar Heating and Cooling," "Geothermal Energy," "Conventional Reactors," "Breeder Reactors," "Nuclear Fusion," "New Fuels from Coal," "Energy Storage Technology," "Alternative Energy Sources: Environmental Impacts," "Alternative Energy Sources: A Glossary of Terms," and "Alternative Energy Sources: A Bibliography"
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830 (615)483-8611
Price: Free

Future Nuclear Usage

Atomic Industrial Forum, Inc., Public Affairs and Information
Program, 7101 Wisconsin Avenue, Washington, D.C. 20014
(301) 654-9260
Price: Free

Gas Centered Projects For Science Fairs

#N00470
American Gas Association, 1515 Wilson Blvd., Arlington,
VA 22209 (703) 524-2000
Price: .10¢ Level 7-12

Gasoline For Your Car - Questions/Answers
Second Edition: #802-15800
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .15¢

Gasoline Marketing - Structure, Facts,
#801-15890
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .50¢

Gasoline: More Miles Per Gallon
Consumer Information, Public Documents Distribution Center,
Pueblo, CO 81009 (303) 544-5277
Price: .35¢

Geothermal Energy
Union Oil Company of California, Corporate Communications
Department, Box 7600, Los Angeles, CA 90051 (213) 486-6815
Price: Free

Geothermal Energy
U.S. Department of Energy, Educational Programs Branch,
20 Massachusetts Avenue, N.W., Washington, D.C. 20545
(202) 376-4074
Price: Free

Guide To Residential Insulation (1978)
New Jersey Department of Energy, Office of Conservation,
101 Commerce Street, Newark, New Jersey 07102
(201) 648-3900
Price: Free

History of Natural Gas
#N00430
American Gas Association, 1515 Wilson Blvd., Arlington,
VA 22209 (703) 524-2000
Price: 1-4 copies, .06¢ each
5 or more copies, .04¢ each

Industrial Energy Conservation - 101 Ideas At Work
Energy Management Section, General Motors Corporation,
3044 W. Grand Blvd., Detroit, ML 48202 (312) 556-2072
Price: Free

Interdisciplinary Student/Teacher Materials On Energy, The Environment, And The Economy
U.S. Department of Energy, Educational Programs Branch,
Office of Public Affairs, 20 Massachusetts Avenue, N.W.,
Washington, D.C. 20545 (202) 376-4074
Price: Free

Know Your Motor Oil, Fifth Edition
#802-15070
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: .50¢

Map Of Coal Areas In The U.S.
National Coal Association, 1130 17th Street Northwest,
Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only

Organizing School Energy Contests
U.S. Department of Energy, Distribution, Office of Administration and Services, Washington, D.C. 20545
Price: Free

Put The Sun To Work Today. Solar/Renewable Energy
DOE Technical Information Center, P.O. Box 62, Oak Ridge,
TN 37830
Price: Free

Solar Energy
U.S. Department of Energy, Educational Programs Branch,
20 Massachusetts Avenue, N.W., Washington, D.C. 20545
(202) 376-4074
Price: Free

Solar Energy And Your Home
National Solar Heating and Cooling Information Center,
P.O. Box 1607, Rockville, MD 20850 (800) 523-2929
Price: Free

The Story Of Natural Gas Energy
#N00480
American Gas Association, 1515 Wilson Blvd., Arlington,
VA 22209 (703) 524-2000
Price: 1-99 copies, .50¢ each
100 or more copies, .45¢ each

Supplementary Energy Sources
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: Free

That Amazing Maze - A Refinery
American Petroleum Institute, Publications and Distribution
Section, 2101 L Street Northwest, Washington, D.C. 20037
(202) 457-7160
Price: Free

Wall Charts
National Coal Association, 1130 17th Street Northwest,
Washington, D.C. 20036 (202) 628-4322
Price: Free, single copy only

What's New Under The Sun?
National Solar Heating and Cooling Information Center,
P.O. Box 1607, Rockville, MD 20850 (800) 523-2929
Price: Free

JOURNALS, MAGAZINES AND PERIODICALS

Coal Facts
National Coal Association, 1130 17th Street Northwest,
Washington, D.C. 20036 (202) 628-4322
Price: $5.00 per issue

Coal News
National Coal Association, 1130 17th Street Northwest,
Washington, D.C. 20036 (202) 628-4322
Price: $50.00 per year

Community and Junior College Journal
Publisher Services, Inc., 621 Duke Street, Alexandria,
VA 22314
Price: $8.00 per year, $1.00 per copy
published 8 times yearly

Mid-Atlantic Solar Energy Society News
c/o Department of Architecture, Graduate School of Fine
Arts, University of Pennsylvania, Philadelphia, PA 19104

Mother Earth News
P.O. Box 70, Hendersonville, NC 28739

Occupational Outlook Quarterly
Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402
Price: $4.00 per year, $1.30 per copy

Popular Science
P.O. Box 2871, Boulder, CO
Price: $7.94 per year

Solar Age
Solar Vision
212 East Main Street
Port Jervis, NY 12771
Price: $20.00 per year, published monthly

Solar Engineering Magazine
Solar Engineering Publishers, Inc., 8435 N. Stemmons Freeway,
Suite 880, Dallas, TX 75247
Price: $10.00 per 12 issues, published monthly with some combined issues

Solar Life
c/o Solar Energy Institute of America, 1110 6th Street, N.W.,
Washington, D.C. 20001

REFERENCES TO EDUCATIONAL OPTIONS

Apprenticeship
The Employment and Training Administration
Inquiries: Room 10225, 601 D St., N.W., Washington, D.C. 20213
Price: Free

Apprenticeship Information Center
1433 Bacharach Blvd., Atlantic City, NJ 08401

Apprenticeship Information Center
554 Broadway, Bayonne, NJ 07002

Apprenticeship Information Center
220 West Broad Street, Burlington, NJ 08016

Apprenticeship Information Center
517 Federal Street, Camden, NJ 08013

Apprenticeship Information Center
1004 Broad Street, Newark, NJ 07102

Apprenticeship Information Center
65 Morris Street, New Brunswick, NJ 08901

Apprenticeship Information Center
165 Prospect St., Passaic, NJ 07055

Apprenticeship Information Center
370 Broadway, Paterson, NJ 07501

Apprenticeship Now (1978)
(Reprint from the Summer Occupational Outlook Quaterly)
U.S. Dept. of Labor, Bureau of Labor Statistics, Washington, D.C. 20210

Apprenticeship Past and Present
The Employment and Training Administration
Inquiries: Room 10225, 601 D St., N.W., Washington, D.C. 20213
Price: Free

The Brochure For Technology Schools
Petroleum Extension Service, The University of Texas at Austin, Austin, Texas 78712
Price: Free

Bureau Of Apprenticeship And Training
Region 11
1515 Broadway, 37th Floor, New York, NY 10036

Career Brief: Petroleum Exploration/Production Occupations
Careers, Inc., Largo, Florida 33540
Price: Free

Careers In Energy Industries (1975)
U.S. Dept. of Energy, Distribution, Office of Administration and Services, Washington, D.C. 20545
Price: Free

Careers In The Energy Industry (1977)
Author: B.H. Kraft
Franklin Watts, Inc., New York

Careers In Exploration Geophysics
The Society of Exploration Geophysicists, P.O. Box 3198,
Tulsa, Oklahoma 74101
Price: $.25

Career Opportunities
Oil and Gas Journal, P.O. Box 1260, Tulsa, Oklahoma 74101
Price: $2.00

Career Opportunities For Landmen
The American Association of Petroleum Landmen, Box 1984,
Forth Worth, Texas 76101
Price: Free

Careers In Petroleum Engineering
Business Office
Society of Petroleum Engineers, 6200 North Central Expressway,
Dallas, Texas 75206
Price: Free

Career Planning: Freedom To Choose (1977)
Author: Bruce Shertzer
Houghton Mifflir, Boston, MA

Career With A Future
Employee Relations Department, Phillips Petroleum Company,
Barlesville, Oklahoma 74004
Price: Free

Five Federal Financial Aid Programs
Basic Grants, P.O. Box 84, Washington, D.C. 20044
Price: Free

Grants For Graduate Study Abroad, 1978-79
Institute of International Education, 809 United Nations Plaza,
New York, New York 10017
Price: Free

Guide To Employment Seeking Skills (1977)
Authors: John D. Krumboltz and Dan Hamel
Career Skills Assessment Programs of the College Enhance
Examination Board

Jobs For Which Apprenticeships Are Available (1976)
U.S. Dept. of Labor, Bureau of Labor Statistics, Washington,
D.C. 20212

Manpower Training In Community Colleges (1974)
Author: Andrew S. Korim
AACJC Publications Sales, One Dupont Circle, Suite 410,
Washington, D.C. 20036
Price: $2.50

The National Apprenticeship Program
The Employment and Training Administration
Inquiries: Room 10225, 601 D St.,N.W., Washington, D.C. 20213
Price: Free

National Science Foundation Guide To Programs
Superintendent of Ducuments, U.S. Government Printing Office,
Washington, D.C. 20402
Price: $1.85 (prepaid)

Need A Lift?
The American Legion, Department S, Box 1055, Indianapolis,
Indiana 46202
Price: 50¢ (prepaid)

Programs Of Support For Graduate Education
(Pamphlet)
U.S. Dept. of Health, Education, and Welfare, Office of Education, Washington, D.C. 20202
HEW Publishing No. (OE)78-17006

Research Fellowships, Announcements Of Predoctoral, Postdoctoral, Or Special Research Fellowships Programs
Career Development Review Branch, Division of Research Grants,
National Institutes of Health, Room 448, Westwood Building,
Bethesda, Maryland 20014
Price: Free

A Selected List Of Major Fellowship Opportunitites And Aids To Advanced Education For United States Citizens
The Fellowship Office, National Academy of Sciences,
2101 Constitution Avenue,NW, Washington, D.C. 20418
Price: Free

Training & Careers In Marine Science
International Oceanographic Foundation, 10 Rickenbacker Causeway, Virginia Key, Miami, Florida

Women At Work
Atlantic Richfield Company, ARCO Plaza, 515 South Flower St.,
Room 4845, Los Angeles, California 90071

ENERGY - RELATED MEDIA

This section lists energy-related media: curriculum material and audiovisual. The audiovisual list includes audio-cassettes and records; 16 mm films and video cassettes; and film strips and 8 mm film loops. The lists are complied in alphabetical order by title.

CURRICULUM MATERIALS

Agriculture, Energy, and Society
Packet No. 2, Stock No. EDM-1034
Price: Free Level 10-12

Order From:
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

Award Winning Energy Education Activities - For Elementary and High School Teachers (1978)
DOE/IR-0015
U.S. Department of Energy, Education Program Division,
Washington, D.C. 20545

Order From:
ERDA Technical Information Center, P.O. Box 62,
Oak Ridge, TN 37830

Bioconversion
Packet No. 20
Price: Free (In Draft Form) Level: 9-12

Order From:
National Science Teachers Association, 1742 Connecticut
Avenue, N.W., Washington, D.C. 20009

Coal
Packet No. 22
Price: Free (In Draft Form) Level: 9-12

Order from:
National Science Teachers Association, 1742 Connecticut
Avenue, N.W., Washington, D.C. 20009

Critical Thinking

Packet No. 17
Price: Free (In Draft Form) Level 9-12

Order From:
National Science Teachers Association, 1742 Connecticut
Avenue, N.W., Washington, D.C. 20009

Energy! A Study of Resources

Center for Consumer Education Services, Building 871,
Plainfield Avenue, Edison, New Jersey 08817
Price: Available for loan at all New Jersey Education Improvement Centers

Energy and Money

Packet No. 25
Price: Free (In Draft Form) Level 9-12

Order From:
National Science Teachers Association, 1742 Connecticut
Avenue, N.W., Washington, D.C. 20009

Energy and Water

Packet No. 24
Price: Free (In Draft Form) Level 9-12

Order From:
National Science Teachers Association, 1742 Connecticut
Avenue, N.W., Washington, D.C. 20009

Energy Crisis: A Teacher's Resource Guide

New Jersey Education Association, 180 West State Street,
Trenton, New Jersey 08608 (609) 599-4561

Energy Conservation in the Home: An Energy Education/Conservation Curriculum Guide for Home Economics Teachers

(1977)
Price: Free

Order From:
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

Energy Conservation: Understanding and Activities for Young People (1975)

Price: Free Level 7-9

Order From:
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

Energy Education Materials (1978)
1st Edition, DC130

Order From:
National Solar Heating and Cooling Information Center
P.O. Box 1607, Rockville, MD 20850
Toll Free: (800) 523-2929

Energy Education Materials Inventory, Volume I (May 1978)
HCP/M8885-01
Price: Printed copy $11.75
Microfiche $3.00

Order From:
National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161

Energy for the Future
Packet No. 23
Price: Free (In Draft Form) Level 9-12

Order From:
National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009

Energy, Engines, and the Industrial Revolution (1977)
Price: Free Level 8 and 9

Order From:
U.S. Department of Energy Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

An Energy History of the United States (1978)
Price: Free Level 8 and 9

Order From:
U.S. Department of Energy Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

Energy in the Global Market-place
Packet No. 13
Price: Free Level 9-11

Order from:
U.S. Department of Energy Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

Energy in Less Developed Countries
Packet No. 21
Price: Free (In Draft Form) Level 9-12

Order From:
National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009

Experiments You Can Do (1978)
One set
Price: Free

Order From:
Thomas Alva Edison Foundation, Suite 143, Cambridge Office Plaza, 18280 West Ten Mile Road, Southfield, Michigan 48075

Exponential Growth
Packet No. 26
Price: Free (In Draft Form) Level 6-9

Order From:
National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009

A High School Teaching Sequence (1976)
Author: Terry, M. and P. Witt
Friends of the Earth, 529 Commercial Street, San Fransisco, CA 94111

How a Bill Becomes a Law to Conserve Energy
Packet No. 1, Stock No. EDM-1033
Price: Free Level 9,11, 12

Order From:
U.S. Department of Energy Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Mathematics in Energy
Packet No. 8, Stock No. HCP/U 3841-002
Price: Free (Field Test Draft) Level 7-9

Order From:
U.S. Department of Energy Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Nuclear Energy
Packet No. 18
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Order From:
National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009

Science Activities in Energy (May 1978)

Order From:
U.S. Department of Energy Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Solar Energy

Packet No. 19
Price: Free (In Draft Form) Level 6-9

Order From:
National Science Teachers Association, 1742 Connecticut Avenue, N.W., Washington, D.C. 20009

Solar Energy Project Activities - Biology

DOE/CS-0065, 061-000-00230-8
Price: $1.70 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Activities - Chemistry and Physics

CS-0064, 061-000-00229-4
Price: $2.20 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202)783-3238

Solar Energy Project Activities - Earth Science

CS-0063, 061-000-00232-4
Price: $2.75 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Activities - General Solar Topics

DOE/CS-0061, 061-000-00231-6
Price: $2.50 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Activities - Jr. High Science

CS-0062, 061-000-00228-6
Price: $2.75 Level 6-9

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Reader

DOE/CS-0067, 061-000-00235-9
Price: $2.75 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Teacher's Guide
DOE/CS-0060, 001-000-00234-1
Price: $2.20 Level 9-12

Order From:
Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402 (202) 783-3238

Solar Energy Project Text
DOE/CS-0066, 061-000-00233-2
Price: $2.75

Order From:
Superintendent of Documents, U.S. Government Printing Office,
Washington, D.C. 20402 (202) 783-3238

There's Enough Energy, But . . . .
Packet No. 16
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Order From:
National Science Teachers Association, 1742 Connecticut
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Transportation and the City (1977)
Price: Free Level 8 and 9

Order From:
U.S. Department of Energy, Technical Information Center,
P.O. Box 62, Oak Ridge, TN 37830

U.S. Energy Policy - Which Direction?
Packet No. 9, Stock No. HCP/U 3841-003
Price: Free Level 11 and 12

Order From:
U.S. Department of Energy Technical Information Center
P.O. Box 62, Oak Ridge, TN 37830

Your Energy World, Units 1-4 (February 1978)
Level 9-12

Order From:
U.S. Department of Energy, Assistant Secretary for Conservation and Solar Application, Office of Marketing and Education,
Washington, D.C. 20545

AUDIOVISUAL

AUDIOCASSETTES AND RECORDS

The Energy Crisis: Some Implications & Alternatives
American Association for the Advancement of Science Audiotape Program, Department QA, 1515 Massachusetts Avenue, N.W.,
Washington, D.C. 20005
Price: $12.00 Level 11-12

"examines components of societal energy demand"

The Exploitation of Natural Resources
The Center for Cassette Studies, 8110 Webb Avenue,
N. Hollywood, Ca 91605
Price: $12.00 Level 10-12

"exploitation of the resources"

Fusion Energy: Power of the Future
The Center for Cassette Studies, 8110 Webb Avenue,
N. Hollywood, Ca 91605
Price: $12.95

"Prospects of fusion power"

Fusion Power
American Association for the Advancement of Science Audiotape Program, Department QA, 1515 Massachusetts Avenue, N.W.,
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Price: $19.95

"developing a thermonuclear fusion power source"

Horsepower
The Center for Cassette Studies, 8110 Webb Avenue,
N. Hollywood, CA 91605
Price: $12.95 Level 4-12

"the efficiency of different power plants"

Non-Nuclear Energy For Development: SESSIONS I-IV
American Association for the Advancement of Science Audiotape Program, Department QA, 1515 Massachusetts Avenue, N.W.,
Washington, D.C. 2005
Price: $19.95/first session Level 11 and 12
$16.95/each additional session

"current and future world energy situation as it affects the Americas"

Oil From the Oceans: Promises & Prospects
American Association for the Advancement of Science Audiotape Program, Department QA, 1515 Massachusetts Avenue, N.W., Washington, D.C. 20005
Price: $18.00 Level 11 and 12

"offshore oil production"

The Place Of Nuclear Power
The Center for Cassette Studies, 8110 Webb Avenue, N. Hollywood, CA 91605
Price: $14.95 Level 7-12

"fission energy"

The Search For Oil
The Center for Cassette Studies, 8110 Webb Avenue, N. Hollywood, CA 91605
Price: $12.95 Level 4-12

"discoveries and advancements in oil production"

Solar Energy: An Interdisciplinary Societal Opportunity
American Association for the Advancement of Science Audiotape Program, Department QA, 1515 Massachusetts Avenue, N.W., Washington, D.C. 20005
Price: $36.00 Level 11-12

"potential of solar energy"

16 MM AND VIDEOCASSETTES

Alternative Energy Sources
Indiana University, Audio-Visual Center, Bloomington, IN 47401
Price: $315.00 purchase Level 9-12
$25.00 rental

"examines existing and proposed alternates"

Bottom Of The Oil Barrel
Time-Life Multimedia, Time-Life Building, New York, N.Y. 10020
Price: $425.00 purchase (film) Level 9-12
$215.00 purchase (cassette)
$40.00 rental

"investigates the oil crisis"

Challenge Of The Future
Department of Energy Film Library Technical Information Center, P.O. Box 62, Oak Ridge TN 37830
Price: Free Loan Level 7-12

"future energy challenges"

Cherokee Shaft

McGraw-Hill Films, 221 Avenue of the Americas, New York, NY 10020

Price: $590.00 purchase
$ 30.00 rental

"mine safety"

Coal Connection

Utah Power and Light Company, 1407 West North Temple Street, Salt Lake City, UT 84110

Price: Free Loan Level 10-12

"electrical generation vs/coal

Day After Tomorrow

Great Plains Instructural TV Library, Box 80669, Lincoln, NE 68501

Price: $20.00 rental Level 7-12

"search for alternative energy sources"

Don't Cut Us Off

Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Price: Free Loan Level 7-12

"response of four communities to high energy costs to elderly"

Electricity--A Series: Production

Indiana University, Audio-Visual Center, Bloomington, IN 47401

Price: $210.00 purchase Level 6-12
$ 9.25 rental

"fundamentals of electricity production"

Energy: A Matter Of Choices

Encyclopedia Britannica. Ed. Corp., 425 N. Michigan Avenue, Chicago, IL 60611

Price: $290.00 purchase
$ 17.00 rental

"social and technical forces in electrical shortage"

Energy - The American Experience

Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Price: Free Loan

"energy development cycles, historical"

Energy And Nuclear Power

Center for Consumer Education Services, Building 871, Plainfield Avenue, Edison, NJ 08817 (201) 985-1885

Price: Free on Loan

Energy For The Future

Encyclopedia Britannica. Education Corp., 425 N. Michigan
Avenue, Chicago, IL 60611
Price: $220.00 purcahse

"dwindling reserves and future alternatives"

Energy: Harnessing The Sun

University of California, University Extension, 2223 Fulton
Street, Berkeley, CA 94720
Price: $20.00 rental Level 9-12

"solar energy"

Energy To Burn

BFA Educational Media, P.O. Box 1795, Santa Monica, Ca 90406
Price: $20.00 rental

"data base for energy study"

Focus On Energy

American Gas Association, 1515 Wilson Boulevard, Arlington,
VA 22209
Price: free loan Level 7-12

"energy dependence-emphasis on Natural Gas"

Geothermal Power

University of California, University Extension, 2223 Fulton
Street, Berkeley, CA 94720
Price: $25.00 rental Level 9-12

"geothermal power"

Great Search

Walt Disney Media Co., 500 S. Buena Vista Street,
Burbank, CA 91521
Price: $225.00 purchase Level 6-12

"discovery, development and application of energy sources"

Have We Stayed Too Long At The Fair?

Center for Consumer Education Services, Building 871,
Plainfield Avenue, Edison, NJ 08817 (201) 985-1885
Price: Free on Loan

Heat: Its Transmission And Control Through Insulation

Johns-Manville Sales Corporation, Drawer 17-L, Denver,
CO 80217
Price: Free Loan Level 9-12

"heat, transfer & insulation"

Here Comes The Sun
Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830
Price: Free Loan Level 7-12

"film on installed solar energy systems"

Iceland: How Clear The Hot Springs Bubble
International Film Bureau Inc., 332 South Michigan Avenue, Chicago, IL 60604
Price: $165.00 purchase

"geothermal energy in Iceland"

Intertie
U.S. Department of Energy, Bonneville Power Administration, P.O. Box 3621, Portland, OR 97208
Price: Free Loan Level 8-12

"documentary of power line construction"

Living With Energy
Standard Oil Company (Indiana), Public and Government Affairs, Programs Section, MC-3705, P.O. Box 5910-A, Chicago, IL 60680
(312) 856-6111
Price: Free on Loan Level 7-12

"current energy problems"

LNG It's On Its Way
Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, NY 11040
Price: Free Loan

"LNG shipment"

Natural Gas: Energy Going To Market
American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209
Price: $65.00 purchase

"pipeline transportation of natural gas"

Nuclear Dilemma
Time-Life Multi-Media, Time-Life Building, New York, NY 10020
Price: $450.00 purchase (film)
$225.00 purchase (video tape)
$ 45.00 rental

"promises and perils of nuclear fission"

Offshore
National Film Board of Canada, 16th Floor, 1251 Avenue of the Americas, New York, NY 10020
Price: $265.00 purchase Level 9-12
$ 30.00 rental

"round the clock shift on an offshore rig"

Power From The Earth
Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830
Price: Free on Loan Level 7-12

"geothermal energy"

Powerline: Transportation of Energy
Darr Films, P.O. Box 5667, Pasadena, CA 91107
Price: $145.00 purchase Level 4-12

"building and operating a power supply system"

Putting The Sun To Work
Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830

Price: Free on Loan Level 7-12

Run For Your Money
Center for Consumer Education Services, Building 871, Plainfield Avenue, Edison, NJ 08817 (201) 985-1885
Price: Free on Loan

Switch On The Sun
Center for Consumer Education Services, Building 871, Plainfield Avenue, Edison, NJ 08817 (201) 985-1885
Price: Free on Loan

Tidal Power
Department of the Army, Corps of Engineers, New England Division, 424 Trapels Road, Waltham, MA 02154
Price: Free on Load Level: 7-12

"U.S. and Canada tidal powers"

A Thousand Suns
Center for Consumer Education Services, Building 871, Plainfield Avenue, Edison, NJ 08817 (201) 985-1885
Price: Free on Loan

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University of California, University Extension, 2223 Fulton Street, Berkeley, CA 94720
Price: $28.00 rental Level 9-12

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Sacramento Municipal Utility District, P.O. Box 15830, Sacramento, CA 95813
Price: Free on Loan Level 7-12

"conception and growth of a nuclear facility"

The Ultimate Energy
Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830
Price: Free on Loan Level 7-12

"fusion and visits to five major labs"

Unseen Journey
Association Films, 866 Third Avenue, New York, NJ 10022
Price: Free on Loan Level 6-12

"transportation of oil to the refinery"

Up The Power Curve
Department of Energy Film Library, Technical Information Center, P.O. Box 62, Oak Ridge, TN 37830
Price: Free on Loan 1 Level 7-12

World Behind Your Light Switch
U.S. Department of Energy, Bonneville Power Administration, P.O. Box 3621, Portland, OR 97208
Price: Free on Loan Level 7-12

"electircal production, transmission, and distribution"

FILMSTRIPS AND 8MM FILMLOOPS

Electrical Energy
Singer Education Division, Society for Visual Education, 1345 Diversity Parkway, Chicago, IL 60614
Price: $17.00 (with cassette) Level 6-9

"fundamental and applications of electrical energy"

Electricity
Encyclopedia Britannica Education Corporation, 425 North Michigan Avenue, Chicago, IL 60611
Price: $57.50 (set of seven) Level 4-6

"basic concepts of electricity"

Electricity In Our Lives
Troll Associates, 320 Route 17, Mahwah, NJ 07430
Price: $24.95 Level 2-8

"electrical flow from power stations to homes"

Energy And The Earth
Lyceum, Inc., Box 1295, La Punte, CA 91749
Price: $46.00 (with cassette) Level 6-12

"understanding and developing renewable and non-renewable energy resources"

Field Trips Out Of The Ordinary
Eye Gate Media, 146-01 Archer Avenue, Jamaica, NY 11435
Price: $74.70 Level 7-12

"field trips to an oil well, a coal mine, a steel mill, a lumber mill, a nuclear plant, and an oceanographic institute"

Fuel Cells
American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209
Price: $1.10 (free to teachers) Level 6-12

"research in fuel cells"

Nuclear Energy
Singer Education Division, Society for Visual Education, 1345 Diversey Parkway, Chicago, IL 60614
Price: $17.00 Level 4-12

"nuclear energy"

NEW JERSEY ENERGY BUSINESSES AND INDUSTRIES

The following reference lists include the names and addresses of New Jersey manufacturers of energy-related products and services. This section is divided into three lists: 1) Energy-Related Manufacturers; 2) Solar Firms; and 3) Public Utilities. The lists are compiled in alphabetical order.

The Energy-Related Manufacturers are organized according to the Standard Industrial Classification (S.I.C.) code which appears before each group title. These broad catagories may include firms that play only a supportive role in energy manufacture. Some may only manufacture a few of their products for energy applications. The firms listed have more than ten employees and may offer energy-related employment.

The list of New Jersey Manufactures is followed by a list of firms engaged in solar-related activities. A number code is provided to tell you if the business is engaged in solar manufacture, distribution, installation , or consultation.

Finally, a list of New Jersey's Public Utilities is provided. Along with the other reference lists, it serves as a useful tool in your search for employment. After reading the section entitled "Getting the Job" in Part III, you may want to send resumes or letters of applications to these firms to initiate a search and get a job.

ENERGY-RELATED MANUFACTURERS

291 PETROLEUM REFINING

BORNE CHEMICAL CO., INC.
632 South Front Street
Elizabeth, NJ 07207
(201)351-1717

CHEVRON U.S.A. INC.
Northwest Division
1200 State Street
Perth Amboy, NJ 08861
(201)738-2000

EXON COMPANY, U.S.A.
East 22nd Street
Bayonne, NJ 07002
(201)474-0100

EXXON CHEMICAL COMPANY U.S.A.
Bayway Chemical Plant
Brunswick Avenue
Linden, NJ 07036
(201)474-0100

FISKE BROTHERS REFINING CO.
129 Lockwood Street
Newark, NJ 07105
(201)589-9150

INDUSTRIAL PETROCHEMICALS CO., INC.
128 Doremus Avenue
Newark, NJ 07105
(201)589-1450

MOBIL OIL CORPORATION
Paulsboro Refinery
P.O. Box 32
Billingsport Road
Paulsboro, NJ 08066
(609)423-1040

NATIONAL OIL RECOVERY CORP.
J.O.C. Oil Company
P.O. Box 338
Hook Road and Commerce Street
Bayonne, NJ 07002
(201)437-7300

REINAUER PETROLEUM COMPANY
101 East Broadway
Hackensack, NJ 07601
(201)488-6600

TEXACO, INC.
Bayonne Terminal
P.O. Box 335
Avenue A and 1st Street
(201)436-2200

TEXACO, INC.
U.S. Highway No. 130
Westville, NJ 08093
(609)845-8000

307 FIBERGLASS FABRICATION

FIBRENETICS INC.
P.O. Box T
Raritan Center
Edison, NJ 08817
(201)225-0510

PLASTIC PIPING SYSTEMS INC.
4475 South Clinton Ave.
Box 269
South Plainfield, NJ 07080
(201)753-2500

UNIVERSAL UNISEAL, INC.
Burlington and Dansas Ave.
Delanco, NJ 08075
(609)461-3200

VANTON PUMP AND EQUIPMENT
CORP.
Div. of: Cooper Alloy Corp.
201 Sweetland Ave.
Hillside, NJ 07205
(201)688-4216

329 ABRASIVE, ABESTOS, AND MISCELLANEOUS NONMETALLIC MINERAL PRODUCTS

JANOS INDUSTRIAL INSULATION CORP.
80 West Commercial Avenue
Moonachie, NJ 07074
(201)933-5854

JOHNS-MANVILLE PRODUCTS CORP.
Johns-Manville Corp.
P.O. Box 130
Berlin, NJ 08009
(609)767-5000

OWENS-CORNING FIBERGLAS
P.O. Box 8
Shreve and Fiberglas Rd.
Barrington, NJ 08007
(609)547-9200

OWENS-CORNING FIBERGLAS CORP.
Johnson Road
Berlin, NJ 08009
(609)767-3300

TRYBEE COMPANY, INC.
280 Green Street
South Hackensack, NJ 07606
(201)489-8088

YORK INDUSTRIES CORP.
6 Hoffman Place
Hillside, NJ 07205
(201)373-2212

335 ROLLING, DRAWING, AND EXTRUDING OF NONFERROUS METALS

INTERNATIONAL WIRE PRODUCTS CO.
Div. of: Carlisle Corp.
500 West Main Street
Wycoff, NJ 07481
(201)891-5800

THE OKONITE COMPANY
Hilltop Road
Ramsey, NJ 07446
(201)825-0300

PHILADELPHIA INSULATED WIRE
COMPANY
333 New Albany Road
Moorestown, NJ 08057
(609)235-6700

TRW CRESCENT WIRE AND CABLE
Div. of: TRW Inc.
P.O. Box 850
Trenton, NJ 08605
(609)396-9111

343 HEATING EQUIPMENT, EXCEPT ELECTRIC AND WARM AIR

COOLENHEAT, INC.
1 McKinley Street
Linden, NJ 07036
(201)925-4473

ELECTRICAL BURNER MANUFACTURING
CO., INC.
22 Union Avenue
Rutherford, NJ 07070
(201)939-8300

QUIET AUTOMATIC BURNER CORP.
17 Grove Street
Montclair, NJ 07042
(201)744-1500

SUNWORKS ETHONE, INC.
270 Foothill Road
Bridgewater, NJ 08876
(201)469-5656

THE WING COMPANY
Div. of: Wing Industries,
Inc.
2300 North Stiles Street
Linden, NJ 07036
(201)486-7400

344 FABRICATED STRUCTURAL METAL PRODUCTS

A & P SHEET METAL CO., INC.
219 Hergesell Ave.
Maywood, NJ 07607
(201)845-0767

ALSCO ANACONDA, INC.
159 Belmont Ave.
Garfield, NJ 07026
(201)546-2600

ALUMINUM BUILDING SPECIALTIES, INC.
1577 Lincoln Highway
Edison, NJ 08817
(201)283-0191

AMARLITE
Div. of: Anaconda Aluminum Co.
West 50 Century Road
P.O. Box 25
Paramus, NJ 07650
(201)262-1540

AMERICAN WELDERY AND STEEL CO.
P.O. Box 867
Dover, NJ 07801
(201)366-3444

ARDE INC.
19 Industrial Ave.
Mahwah, NJ 07430
(201)529-3700

ARGO WELDED PRODUCTS, INC.
Industrial Center
Alpha, NJ 08866
(201)454-9743

ATLAS INDUSTRIAL MANUFACTURING COMPANY
81 Somerset Place
Clifton, NJ 07012
(201)779-3970

THE BOGERT & CARLOUGH CO.
508 Straight St.
P.O. Box 2444
Paterson, NJ 07509
(201)742-9662

BONLAND SHEET METAL CO., INC.
50 Newark Pompton Turnpike
Wayne, NJ 07470
(201)694-3211

H.F. BUTLER CORPORATION
377 Roosevelt Ave.
Carteret, NJ 07008
(201)969-0820

CHENEY & COMPANY INC.
832 East St. George Ave.
Linden, NJ 07036
(201)925-7600

344 FABRICATED STRUCTURAL METAL PRODUCTS (CONT.)

CROWN SHEET METAL CO., INC.
50-52 Graham St.
Jersey City, NJ 07307
(201)792-111

D & W WELDING AND FABRICATING CO., INC.
Locust St.
Keyport, NJ 07735
(201)264-3610

DOR-WIN MANUFACTURING CO., INC.
236 Midland Ave.
Saddle Brook, NJ 07662
(201)478-3500

DUNPHEY SMITH CORP.
Progress St.
Greeley Ave.
Union, NJ 07083
(201)687-6292

DURALCO MANUFACTURING PRODUCTS COMPANY
224 South Second St.
Perth Amboy, NJ 08861
(201)442-7078

EASTERN TANK CORPORATION
290 Pennsylvania Ave.
Paterson, NJ 07503
(201)271-2234

ELCO SHEET METAL AND ENGINEERING COMPANY
45 Carlton Ave.
East Rutherford, NJ 07073
(201)939-0044

EDWARDS ENGINEERING CORP.
101 Alexander Ave.
Pompton Plains, NJ 07444
(201)835-2808

EMERSON MANUFACTURING CO., INC.
Pennsauken, NJ 08110
(609)665-4155

EXTRUDENT METAL PRODUCTS, INC.
454 Allwood Road
Clifton, NJ 07011
(201)472-8080

FIMBEL DOOR CORPORATION
Coddington Road
Whitehouse, NJ 08888
(201)534-4112

GENERAL ALUMINUM WINDOW CO., INC.
23 New York Ave.
Newark, NJ 07105
(201)589-7337

GENERAL SHEET METAL CO.
41 Romeo St.
Moonachie, NJ 07074
(201)428-9382

HARRISON ALUMUNUM INDUSTRIES, INC.
Div. of: Sparrow Aluminum Co.
15 Richboynton Road
Dover, NJ 07801
(201)361-7800

HAWTHORNE TANK AND WELDING CO., INC.
50 Rock Road
Hawthorne, NJ 07506
(201)427-1235

HEAT RECOVERY CORP.
93 Entin Road
Clifton, NJ 07014
(201)473-3600

HERMET, INC.
100 East Dickerson St.
Dover, NJ 07801
(201)361-6920

HOLLER METAL FABRICATION, INC.
274 Rutherford Blvd.
Clifton, NJ 07014
(201)773-5220

HYDROTHERM, INC.
Div. of: Automation Industries, Inc.
Rockland Ave.
Northvale, NJ 07647
(201)768-5500

344 FABRICATED STRUCTURAL METAL PRODUCTS (CONT.)

IDEAL ALUMINUM PRODUCTS, CO.
100 West 7th St.
Bayonne, NJ 07002
(201)437-4300

INDUSTRIAL PROCESS ENGINEERS
Div. of: Geseral Corp.
8 Lister St.
Newark, NJ 07015
(201)589-4400

INDUSTRIAL WELDING COMPANY
655 Ferry St.
Newark, NJ 07105
(201)589-3100

INTERSTATE ALUMINUM MANUFACTURING CORP.
1313 Kings Highway
Maple Shade, NJ 08052
(609)234-3702

INTERSTATE WELDING AND MANUFACTURING CO., INC.
8407 River Road
Delair, NJ 08110
(609)662-4600

ISOTHERMICS INC.
P.O. Box 86
Route 206
Augusta, NJ 07822
(201)383-3500

JAMCO PRODUCTS, INC.
Sub. of: Rusco Industries
206 Pegasus Ave.
Northvale, NJ 07647
(201)768-7000

JASCO ALUMINUM PRODUCTS OF NEW JERSEY, INC.
62-66 Madison Ave.
Clifton, NJ 07011
(201)365-0100

KEARNY INDUSTRIES INC.
Kearny Fluid Equipment
2624 Hamilton Blvd.
South Plainfield, NJ 07080

MANNING AND LEWIS ENGINEERING, COMPANY
675 Rahway Ave.
Union, NJ 07083
(201)687-2400

MCCABE BOILER WORKS, INC.
488 Market St.
Newark, NJ 07105
(201)589-0700

PAUL MILLER SHEET METAL WORKS, INC.
1000 East Elizabeth Ave.
Linden, NJ 07036
(201)486-5756

MORAN AND ROBINSON COMPANY
17 James St. Rear
Bloomfield, NJ 07003
(201)743-2021

NASH MANUFACTURING CORP.
P.O. Box 296
122 Myrtle Ave.
Long Branch, NJ 07740
(201)222-6200

NETCONG TANK COMPANY
80 Stoll St.
Netcong, NJ 07857
(201)347-1042

NEW BRUNSWICK GENERAL SHEET METAL WORKS
425 Cleveland Ave.
Highland Park, NJ 08904
(201)249-1470

NEWARK KALAMEIN AND SHEET METAL WORKS, INC.
610 South 13th St.
Newark, NJ 07103
(201)243-5700

B. NOLTE AND SONS, INC.
Muller Road
Whitehouse Station, NJ 08888
(201)534-2135

344 FABRICATED STRUCTURAL METAL PRODUCTS (CONT.)

PEMCO
Process Engineering and
Machine Company
442 York St.
Elizabeth, NJ 07201
(201) 354-9222

PERMASEAL MANUFACTURING CORP.
288 Lincoln Blvd.
Middlesex, NJ 08846
(201) 356-6300

A.J. PETRUNIS, INC.
173 Waster St.
Bridgeton, NJ 08302
(201) 451-7558

PHILLIPS STEEL FABRICATORS, INC.
31 Iron Horse Road, Box 1310
Oakland, NJ 07436
(201) 337-5885

PIKE MACHINE PRODUCTS, INC.
353 Boyden Ave.
Maplewood, NJ 07040
(201) 761-5511

POLY-FIBRE INCORPORATED
Central Jersey Industrial Park
Chimney Rock Road
Bound Brook, NJ 08805
(201) 469-3434

PROCESS ENGINEERING AND MACHINE
442 York St.
Elizabeth, NJ 07201
(201) 354-9222

PRODUCTS OF ALUMINUM MANUFACTURING CO., INC.
31 Davis Ave.
Mt. Ephram, NJ 08059
(609) 931-3777

RAINAIRE PRODUCTS, INC.
1300 Admiral Wilson Blvd.
P.O. Box 1966
Camden, NJ 08101
(609) 966-8500

RHEEM MANUFACTURING CO.
15 Cotters Lane
East Brunswick, NJ 08816
(201) 238-3630

ROCKAWAY TANK INC.
Div. of: Theo. Walter Copper
Works Inc.
U.S. 46 and Lee Avenue
Dover, NJ 07801
(201) 366-2300

ROYAL ALUMINUM CO., INC.
620 Market St.
Newark, NJ 07105
(201) 589-8880

J.W. RUNGE AND CO.
432 Danforth Ave.
Jersey City, NJ 07305
(201) 432-8224

SHEILD PRODUCTS, INC.
280 Midland Ave.
Saddle Brook, NJ 07662
(201) 791-1400

SILVER LINE BUILDING PRODUCTS CORP.
10 Boright Ave.
Kenilworth, NJ 07033
(201) 686-9020

SPARROW ALUMINUM CO.
15 Richboynton Road
Dover, NJ 07801
(201) 366-3070

STERLING MANUFACTURING CO., INC.
224 Twenty First Ave.
Paterson, NJ 07501
(201) 742-1900

STELLAR MANUFACTURING CO.
120 Ferry Ave.
Collingswood, NJ 08108
(609) 854-1829

SUPERIOR ALUMINUM PRODUCTS CO.
West Collingswood Height, NJ
08107
(609) 456-4950

344 FABRICATED STRUCTURAL METAL PRODUCTS (CONT.)

SUPERIOR STEAM GENERATORS OF
NEW JERSEY, INC.
306 Hayward St.
Orange, NJ 07050
(201)677-1100

SWS IND., INC.
75 Knickerbocker Road
Moonachie, NJ 07074
(201)939-2050

UNION TOOL AND MOLD CO., INC.
2300 Morris Ave.
Union, NJ 07083
(201)687-5737

WAGE ELECTRIC INC.
820 Colfax Ave.
Kenilworth, NJ 07033
(201)245-9363

WELDON, INC.
51 Terminal Ave.
P.O. Box 735
Clark, NJ 07066
(201)574-2828

WHITE STAR ALUMINUM
611 Delsea Drive
Westville Grove
P.O. Box 43
Westville, NJ 08903

WOERNER MACHINE AND TOOL
COMPANY, INC.
501 Stelton Road
Piscataway, NJ 08854
(201)752-6356

347 COATING, ENGRAVING, AND ALLIED SERVICES

A & F ELECTROPLATING, INC.
106 Ashland Ave.
West Orange, NJ 07052
(201)736-4344

ANODIZING CORPORATION
39 Avenue L
Newark, NJ 07105
(201)589-1200

AMERICAN ELECTRO PLATING CO.
342 Lincoln Ave.
Hawthorne, NJ 07506
(201)427-2300

AMERICAN ENGRAVING AND MACHINE
COMPANY
Div. of: Armotek Industries,
Inc.
Beverly-Rancocas Road
Willingboro, NJ 08046
(609)877-5400

APEX PLATING AND POLISHING
COMPANY, INC.
P.O. Box 525
114 East Price St.
Linden, NJ 07036
(201)925-3223

B & B ELECTROPLATING CO.,
INC.
559 Pennsylvania Ave.
Linden, NJ 07036
(201)925-5044

BLACK OXIDE PROCESSING CORPORATION
85 Gotthart St.
Newark, NJ 07105
(201)589-2250

CAPITOL CHROME CORPORATION
2607 East State Street
Trenton, NJ 08619
(609)586-7575

DONALD STEEL TREATING SERVICE, INC.
147-149 Thomas St.
Newark, NJ 07114
(201)589-7665

T.A. FARRELL PLATING CO.
Div. of: Howil Corp.
39 Atlantic St.
Garfield, NJ 07026
(201)340-0357

347 COATING, ENGRAVING, AND ALLIED SERVICES

FASCO FINISHING CO., INC.
191 Howard St.
Phillipsburg, NJ 08865
(201)454-2179

FERRIS PLATING CO., INC.
114 Moonachie Ave.
Moonachie, NJ 07074
(201)438-1010

GENERAL MAGNAPLATE CORP.
1331 U.S. Route 1
Linden, NJ 07036
(201)862-6200

HILL CROSS COMPANY, INC.
543 56th St.
West New York, NJ 07903
(201)864-3393

HY-GRADE ELECTROPLATING CO.
35-4 Street
Newark, NJ 07107
(201)482-1442

IDEAL PLATING AND POLISHING CO.
1570 West Blancke St.
Linden, NJ 07036
(201)862-7944

INDEPENDENCE PLATING CORPORATION
107 Alabama Ave.
Paterson, NJ 07503
(201)525-1776

INDUSTRIAL HARD CHROMIUM COMPANY
7 Rome St.
Newark, NJ 07105
(201)344-2265

KRISO'S ELECTRIC PLATING COMPANY
11 Paterson Ave.
Wallington, NJ 07057
(201)779-3870

MILLER AND SON
24 Belleville Ave.
Belleville, NJ 07109
(201)759-6445

MODERN METAL INDUSTRIES OF NEW JERSEY, NIC.
112 Graylock Ave.
Belleville, NJ 07109
(201)759-5131

PERMA CHROME CORP.
5 James St.
South Hackensack, NJ 07606
(201)343-7775

POLARIS PLATING INC.
187 Albion Ave.
Paterson, NJ 07502
(201)271-0033

RAMNO ELECTRO PLATING CORPORATION
280 Midland Ave.
Saddle Brook, NJ 07662
(201)791-6655

SGL MODERN HARD CHROME SERVICE
Div. Of: SGL Industries, Inc.
Cove and River Roads
Pennsauken, NJ 08110
(609)966-2000

TRIO PLATING COMPANY, INC.
Div. of: Multitone Engraving Company
25 Brighton Ave.
Passaic, NJ 07055
(201)473-3470

VANGUARD RESEARCH ASSOCIATION, INC.
239 Saint Nicholas Ave.
South Plainfield, NJ 07080
(201)753-2770

349 MISCELLANEOUS FABRICATED METAL PRODUCTS

AERCO INTERNATIONAL, INC.
P.O. Box 128
159 Paris Ave.
Northvale, NJ 07647
(201)768-2400

ALOYCO PLANT
Div. of: Walworth Company
1400 West Elizabeth Ave.
Linden, NJ 07036
(201)862-4600

ATLAS VALVE COMPANY
280 South St.
Newark, NJ 07114
(201)344-4800

BAKELAAR MACHINE COMPANY
1112 Goffle Road
Hawthorne, NJ 07507
(201)427-1245

CHATHAM PRECISION, INC.
9 Commerce St.
Chatham, NJ 07928
(201)635-9695

CHEM FLOW CORPORATION
P.O. Box 598
West Paterson, NJ 07424
(201)785-0001

CROWN CONTROLS INC.
388 Getty Ave.
Clifton, NJ 07011
(201)478-5755

DESIGN AIDS COMPANY
46 4th Ave.
Long Branch, NJ 07740
(201)222-7623

FEE AND MASON MANUFACTURING COMPANY
A.-T.-O, Inc.
P.O. Box D
Manasquan, NJ 08736
(201)223-3000

FLODYNE CONTROLS, INC.
48 Commerce Drive
Murray Hill, NJ 07974
(201)464-6200

FOX VALVE DEVELOPMENT COMPANY
2 Great Meadow Lane
Hanover, NJ 07936
(201)887-7474

GARDEN MACHINE COMPANY, INC.
108 Main St.
West Collingswood Height, NJ 08059
(609)456-4329

GENERAL PNEUMATICS CORP.
440 Washington St.
Orange, NJ 07050
(201)678-6555

GENERANT COMPANY, INC.
360 Verona Ave.
Newark, NJ 07104
(201)481-3300

IDEA SUPPLY COMPANY
445 Communipaw Ave.
Jersey City, NJ 07304
(201)333-2600

IMPERIAL WELD RING CORP.
80 Front St.
Elizabeth, NJ 07206
(201)354-0011

LESLIE COMPANY
399 Jefferson Road
Parsippany, NJ 07054
(201)887-9000

KAYE AND MACDONALD, INC.
11-15 Central Ave.
West Orange, NJ 07052
(201)674-8060

KNOX MANUFACTURING
300 Miller Road
Medford, NJ 08055
(201)234-6226

MAGNATROL VALVE CORPORATION
P.O. Box 17
67 Fifth Ave.
Hawthorne, NJ 07506
(201)427-4341

349 MISCELLANEOUS FABRICATED METAL PRODUCTS (CONT.)

PLASTIC PIPING SYSTEMS INC.
4475 South Clinton Ave.
Box 269
South Plainfield, NJ 07080
(201)753-2500

PNEU-HYDRO PRODS, INC.
Hibernia Ave.
Rockaway, NJ 07866
(201)625-1415

S-B ENGINEERING COMPANY
14 Sebago St.
Clifton, NJ 07013
(201)473-6477

SCHNITZER ALLOY PRODUCTS
COMPANY
325 Pine St.
Elizabeth, NJ 07206
(201)353-1300

SIMS PUMP VALVE COMPANY,
INC.
1314 Park Ave.
Hoboken, NJ 07030
(201)792-0600

HENRY SPEN AND COMPANY, INC.
17 Valley Road
Butler, NJ 07405
(201)838-0173

SPIRA-MATIC CORPORATION
Route 130 and Lincoln Ave.
West Collingswood Height, NJ
08107
(609)456-8033

STAINLESS AND ALLOY DIVISION
ENERGY PRODUCTS
Group Gulf and Western Manufacturing Company
P.O. Box 610
Somerville, NJ 08876
(201)722-1313

STAUFF CORPORATION
21-23 Industrial Park
Waldwick, NJ 07463
(201)444-7800

TELEDYNE FERRIS ENGINEERING
400 Commercial Ave.
Palisades Park, NJ 07650
(201)944-6300

TPCO INCORPORATED
Sub. of: Triangle Industries
P.O. Box 59
Stouts Lane
Monmouth Junction, NJ 08852
(201)329-2371

UNIVERSAL UNISEAL, INC.
Burlington and Kansas Ave.
Delanco, NJ 08075
(609)461-3200

UNIVERSAL VALVE COMPANY
478 Schiller St.
Elizabeth, NJ 07206
(201)351-0606

VALCOR ENGINEERING CORPORATION
365 Carnegie Ave.
Kenilworth, NJ 07033
(201)245-1665

VALVES SYSTEMS AND CONTROLS
Kildeer Court
Bridgeport, NJ 08014
(201)467-3350

VERSA PRODUCTS, COMPANY, INC.
150 Coolidge Ave.
Englewood, NJ 07631
(201)567-2820

VICTAULIC COMPANY OF AMERICA
3100 Hamilton Blvd.
South Plainfield, NJ 07080
(201)752-0600

351 ENGINES AND TURBINES

ARROW MACHINE COMPANY
117-121 Norfolk St.
Newark, NJ 07103
(201)642-2430

DE LAVAL TURBINE, INC.
Condenser and Filter Div.
Front Street
Florence, NJ 08518
(609)499-3000

DELAVAL TURBINE, INC.
895 Nottingham Way
Trenton, NJ 08602
(609)587-5000

EASTERN PROCESS COMPANY, INC.
70 West Passaic St.
Rochelle Park, NJ 07662
(201)843-2222

JOHNSON AND TOWERS, INC.
P.O. Box 38
Moorestown, NJ 08057
(201)234-6990

TURBODYNE CORPORATION
Steam Turbine Division
Two Stewart Place
Fairfield, NJ 07006
(201)227-2499

355 SPECIAL INDUSTRY MACHINERY, EXCEPT METALWORKING MACHINERY

BETAR, INC.
P.O. Box 896
1524 Millstone River Road
Somerville, NJ 08876
(201)359-4200

J. OAT CORP.
2500 Broadway
Camden, NJ 08104
(609)541-2900

STAUFF CORP.
21-23 Industrial Park
Waldwick, NJ 07463
(201)444-7800

356 GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT

AERO FILTER DEVELOPMENT CORP.
333 Hamilton Blvd.
South Plainfield, NJ 07080
(201)755-4460

ALLIED PUMP CORPORATION
128 Harrison St.
Hoboken, NJ 07030
(201)798-3277

AMERICAN GAS FURNACE CORP.
P.O. Box 496
Elizabeth, NJ 07207
(201)352-2120

C-M MANUFACTURING AND MACHINE COMPANY, INC.
103 Dewey St.
Bloomfield, NJ 07003
(201)338-6500

356 GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT (CONT.)

CHESTON COMPANY
Sub. of: Inductotherm Co.
65 Indel Ave.
Rancocas, NJ 08073
(609)267-3535

COEN COMPANY, INC.
Fuel Handling Division
P.O. Box 232
Rockaway, NJ 07866
(201)625-4830

CONSARC CORP.
100 Indel Ave.
Rancocas, NJ 08073
(609)267-8000

CONTROL AIR, INC.
Div. of: Aeronix, Inc.
19 Walnut Ave.
Clark, NJ 07066
(201)381-9300

FLUID HANDLING SYSTEMS, INC.
1095 Peterson Lane
Secaucus, NJ 07093
(201)864-2173

FMC CORP
Coffin Turbo-Pump Division
326 Dean St.
Englewood, NJ 07631
(201)568-4700

GE AIR COMPRESSOR AND PUMP CO.
326 Frelinghuysen Ave.
Newark, NJ 07114
(201)242-2305

HEAT ENGINEERING INC.
Sub. of: Electric Arc Inc.
P.O. Box Y
Cedar Knolls, NJ 07927
(201)267-3560

HED INDUSTRIES
P.O. Box 176
Pennington, NJ 08534
(609)466-3600

HUDSON CORP.
80 Lafayette Place
Englewood, NJ 07631
(201)569-5400

HYNES ELECTRIC HEATING CO.
30 Lafayette Place
Kenilworth, NJ 07033
(201)276-9494

ITT MARLOW
Pumps and Compressors Div.
445 Goodwin Ave.
Midland Park, NJ 07432
(201)444-6900

LIQUIFLO EQUIPMENT CO.
140 Mt. Bethel Road
Warren, NJ 07060
(201)754-1333

LYDON BROTHERS CORP.
85 Zabriske St.
P.O. Box 708
Hackensack, NJ 07602
(201)343-4334

MCDOWELL ELECTRONICS
Div. of: EAI
Four Saddle Road
Cedar Knolls, NJ 07927
(201)539-7100

NATIONAL STANDARD COMPANY
Wagner Litho Machinery Div.
555 Lincoln Ave.
Secaucus, NJ 07084
(201)865-2020

NICHOLS ENGINEERING AND RESEARCH CORP.
Sub. of: Neptune International Corp.
Homestead and Willow Road
Belle Mead, NJ 08502
(201)359-8200

PROGRESSIVE HYDRAULICS, INC.
190 Greenwood Ave.
Midland, NJ 07432
(201)447-4409

356 GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT (CONT.)

STA-RITE INDUSTRIES, INC.
17 Cotters Lane
East Brunswick, NJ 08816
(201)238-1600

TM VACUUM PRODUCTS
Warrington and Rowland Sts.
Riverton, NJ 08077
(609)829-2000

VANTON PUMP AND EQUIPMENT
CORP.
Div. of: Cooper Alloy Corp.
201 Sweetland Ave
Hillside, NJ 07205
(201)688-4216

WORTHINGTON PUMP COMPANY
Millburn Ave.
Maplewood, NJ 07040
(201)763-9300

WORTHINGTON PUMP CORP.
401 Worthington Ave.
Harrison, NJ 07029
(201)484-1234

WORTHINGTON PUMP CORP. U.S.A.
Div. of: Worthington Pump,
Inc.
270 Sheffield St.
Mountainside, NJ 07072
(201)654-3300

358 REFIGERATION AND SERVICE INDUSTRY MACHINERY

AIR THERM COMPANY, INC.
27 Dumont Ave.
Dumont, NJ 07628
(201)385-2800

ALLIED CONDITIONING CORP.
100 Prospect St.
Metuchen, NJ 08840
(201)548-5656

APGAR HEATING AND COOLING CORP.
P.O. Box 125
Bound Brook, NJ 08805
(201)356-3131

BLAZER INDUSTRIES, INC.
700 Twenty-First Ave.
Paterson, NJ 07513
(201)881-9100

CALMAC MANUFACTURING CORP.
150 South Van Brunt St.
Englewood, NJ 07631
(201)569-0420

DUNPHEY SMITH CORP.
Progress St.
Greeley Ave.
Union, NJ 07083
(201)687-6292

FEDDERS CORPORATION
Woodbridge Ave.
Edison, NJ 08817
(201)549-7200

GENERAL ELECTRIC COMPANY
Central Air Conditioning
Products Dept.
2231 East State St.
Trenton, NJ 08619
(609)587-3400

JOHN H. COONEY INC.
210 North Fourth
Harrison, NJ 07029
(201)482-4988

MEYER AND DEPEW CO., INC.
P.O. Box 25
Union, NJ 07083
(201)686-6660

MUELLER CLIMTROL CORP.
Administrative Offices
255 Woodbridge Ave.
Edison, NJ 08854
(201)549-7200

NORMAN SHEET METAL WORK
CO., INC.
132 Union Ave.
Bloomingdale, NJ 07430
(201)838-5454

358 REFRIGERATION AND SERVICE INDUSTRY MACHINERY (CONT.)

SINGER-CLIMATE CONTROL DIVISION
Div. of: Commercial Operations
1300 Federal Blvd.
Carteret, NJ 07008
(201)636-3300

PHILIP FRITZE AND SONS, INC.
10 School St.
Whippany, NJ 07981
(201)887-0685

359 MISCELLANEOUS MACHINERY, EXCEPT ELECTRICAL

INDUCTOTHERM CORPORATION
10 Indel Ave.
Rancocas, NJ 08073
(609)267-9000

GENERAL PNEUMATICS CORP.
440 Washington St.
Orange, NJ 07050

UNIVERSAL UNISEAL, INC.
Burlington and Kansas Ave.
Delanco, NJ 08075
(609)461-3200

361 ELECTRIC TRANSMISSION AND DISTRIBUTION EQUIPMENT

AC TRANSFORMER CORP.
89 Madison St.
Newark, NJ 07105
(201)589-8574

AUSTIN ASSOCIATES, INC.
152 Veterns Drive
Northvale, NJ 07647
(201)768-8846

BELYEA COMPANY, INC.
31 Howell St.
Jersey City, NJ 07306
(201)653-3334

COLUMBUS METAL PRODUCTS, COMPANY, INC.
U.S. Route 130
Burlington, NJ 08016
(609)386-0672

CYCLE TRANSFORMER CORP.
177 Main St.
West Orange, NJ 07052
(201)731-7440

FEDERAL PACIFIC ELECTRIC CO.
Roller Smith, Inc. Div.
150 Avenue L
Newark, NJ 07101
(201)589-7500

KENYON MAGNETICS INC.
1040 Grand St.
Hoboken, NJ 07030
(201)798-6511

KILOVOLT CORPORATION
238 High St.
Hackensack, NJ 07602
(201)488-7373

KOLTON ELECTRIC MANUFACTURING COMPANY
135 N.J. Railroad Ave.
Newark, NJ 07105
(201)344-4622

HITRAN CORPORATION
Div. of: American General Energy Corp.
Route 31, R.D. 5, Box 65
Flemington, NJ 08822
(201)782-5522

THE MANYPENNY COMPANY
1999 Cooper St.
Camden, NJ 08105
(609)966-5886

361 ELECTRIC TRANSMISSION AND DISTRIBUTION EQUIPMENT (CONT.)

POWER MAGNETICS, INC.
P.O. Box 248 D
Trenton, NJ 08609
(609)695-1170

RADIO SWITCH CORP.
Route 79
Marlboro, NJ 07746
(201)462-6100

SELCO ELECTRONICS, INC.
465 Commercial Ave.
Palisades Park, NJ 07650
(201)944-6046

SUN DIAL AND PANEL CORP.
60 Passaic Ave.
Fairfield, NJ 07006
(201)226-4334

362 ELECTRICAL INDUSTRIAL APPARATUS

BELYEA COMPANY, INC.
31 Howell St.
Jersey City, NJ 07306
(201)653-3334

BOGUE ELECTRIC MANUFACTURING COMPANY
100 Pennsylvania Ave.
Paterson, NJ 07509
(201)525-2200

367 ELECTRONIC COMPONENTS AND ACCESSORIES

AERO TEC LABS, INC.
Hewsen Ave.
Waldwick, NJ 07463
(201)444-6080

KOLTON ELECTRIC MANUFACTURING COMPANY
135 N.J. Railroad Ave.
Newark, NJ 07105
(201)344-4622

MELCOR/MATERIALS ELECTRONICS PRODUCTS CORP.
990 Spruce St.
Trenton, NJ 08648
(609)393-4178

372 NUCLEAR PRODUCTS AND PROCESS

CURTISS-WRIGHT CORPORATION
One Passaic Street
Wood-Rridge, NJ 07075
(201)777-2900

382 MEASURING AND CONTROLLING INSTRUMENTS

BURLING INSTRUMENT COMPANY
P.O. Box 298
16 River Road
Chatham, NJ 07928
(201)635-9481

DESCHAMPS LABORATORIES, INC.
5 Merry Lane
East Hanover, NJ 07936
(201)884-1460

382 MEASURING AND CONTROLLING INSTRUMENTS (CONT.)

FLO-TRON INC.
495 East 30th St.
Paterson, NJ 07504
(201) 279-6500

FLOWTRON INDUSTRIES, INC.
2 Alsan Way
Little Ferry, NJ 07643
(201) 440-1503

H & H PRECISION PRODUCTS
Div. of: I.S.E.
25 Canfield Road
Cedar Grove, NJ 07009
(201) 239-1331

JOHNSON SERVICE COMPANY
Sales Branch
1126 Morris Ave
Union, NJ 07083
(201) 688-7900

NORMAN BRAGAR COMPANY, INC.
350 Lafayette St.
Newark, NJ 07105
(201) 344-1100

ROBERT H. WAGNER COMPANY, INC.
Passaic Ave.
Chatham, NJ 07928
(201) 635-9200

THE THERMO ELECTRIC COMPANY
109 Fifth St.
Saddle Brook, NJ 07662
(201) 843-5800

WARREN CONTROLS CORP.
P.O. Box 8
Route 57
Broadway, NJ 08808
(201) 689-1400

SOLAR FIRMS

This list contains solar manufacturers, dealers, distributors, contractors, installers, and consultants in New Jersey. The list is compiled in alphabetical order.

1 = Manufacturer
2 = Dealer/Distributor
3 = Contractor/Installer
4 = Consultant

ROCCO ABBATANGELO
136 42nd St.
Sea Isle City, NJ 08243
(2,3)

ACE SOLAR SYSTEM
650 Totawa Rd.
Totawa Boro, NJ 07512
(1)

ADE SOLAR
17 Dartmouth Dr.
Hazlet, NJ 07730
(2,3,4)

AE PLUMBING, HEATING, AND COOLING
184 Franklin Tpk.
Mahwah, NJ 07430
(2,3,4)

AGGRESSIVE APPLIANCE, INC.
2100 Highway 35
Sea Girt, NJ 08750
(3)

AGGRESSIVE APPLIANCE, INC.
2677 Highway 70
Manasquan, NJ 08736
(3)

V. ALEVIZAKOS
422 Magnolia St.
Highland Park, NJ 08904
(4)

ALL PURPOSE HEATING AND AIR CONDITIONING, INC.
169 Lodi Ave.
Hackensack, NJ 07601
(2,3)

ALLIED BOL. REP. CO.
1701 Valley Rd.
Wanamassa, NJ 07712
(3)

ALLIED CHEMICAL/FIBER DIV.
P.O. Box 1057R
Morristown, NJ 07960
(1)

ALTERNATE SOLAR ENERGY SYSTEMS
247-B Vermont Ave.
Toms River, NJ 08753
(2,3)

AMERICAN SOLAR CO., INC.
Bldg. #4, Ford Rd.
Denville, NJ 07834
(2,3,4)

THE ANDERSON AIR LIFT
441 Washington Ave.
Montclair, NJ 07042
(3)

THE ARKORD COMPANY
P.O. Box 603
Belmar, NJ 07719
(3,4)

ASG INDUSTRIES INC.
1 B Belmar Rd.
Cranbury, NJ 08512
(1)

ASSOCIATED ALUMINUM HOME IMPROVEMENT
8 Hudson Ave.
Middleton Twp. NJ 07734
(3)

ATLANTIC CITY ELECTRIC
1600 Pacific Ave.
Atlantic City, NJ 08404
(4)

ATLANTIC CONDITIONING CO.
Montesand Rd.
Fairfield, NJ 07006
(3)

AVATAR SOLAR DIV. A/E
316 Maxwell St.
Cliffwood, NJ 07721
(2,3,4)

AZTEC SOLAR INC.
P.O. Box 42
Oakhurst, NJ 07755
(2,3,4)

ALFRED T. BACHMAN
9 Richard Ave.
West Caldwell, NJ 07006
(3)

J.S. BALLANTINE
121 North Shore Rd.
Absecon, NJ 08201
(4)

BASIC ENERGY CONSTRUCTION
5 Egert Hill Rd.
Morristown, NJ 07960
(3)

BEAUTIFUL DAY CO.
65 Greenbrook Rd.
No. Plainfield, NJ 07060
(3)

BENJAMIN LABOR & SONS
MECHANICAL CONTRACTORS
212 Adriatic Ave.
Atlantic City, NJ 08401
(2,3)

S. BERKOWITZ & ASSOC.
101 Cedar Lane
Teaneck, NJ 07666
(4)

BERRY SOLAR PRODUCTS
P.O. Box 327
Edison, NJ 08817
(1)

JAMES E. BLADES INC.
P.O. Box 416
Denville, NJ 07834
(3)

MARTIN BLENDER
54 Falcon Rd.
Livingston, NJ 07039
(4)

BONHAG COMPANY INC.
P.O. Box 416
Hawthorne, NJ 07507
(2,3,4)

BERNSTEIN SONS, INC.
1677 Springfield Ave.
Maplewood, NJ 07040
(3)

B.R.C. CONSTRUCTION CO.
Arnestown-Ellisdale Rd.
Allentown, NJ 08501
(3)

BRIDGEWATER REF/A. COMP.
19 4th Ave.
Bridgewater, NJ 08807
(1,2,3,4)

CARL BROWN AND SONS
RD #3
Bridgeton, NJ 08302
(2,3)

R.J. BRUNELLI & CO.
320 Amboy Ave.
Metuchen, NJ 08840
(3)

BUCH CONTRACTING
Kingtown Rd.
Pittstown, NJ 08618
(3)

BURKE BROS.
117 Bayard St.
Trenton, NJ 08618
(3,4)

BYKO-STIPE ASSOC.
166 Ridgedale Ave.
Morristown, NJ 07960
(2,3)

CALMAC MANUFACTURING CORP.
Box 710
Englewood, NJ 07631
(1)

CENTRAL SOLAR SYSTEMS
164 Grove St.
Montclair, NJ 07042
(2,3)

C.F.S. SOLAR ENERGY SYSTEMS
728 Beaver Dam Rd.
P.O. Box E, Suite #4
Pt. Pleasant, NJ 08742
(2,4)

ARCHIE CHRISTIAN
RFD 3, Box 3370
Sussex, NJ 07461
(2,3)

J.L. CICALESE
54 Hillside Ave.
West Orange, NJ
(3)

COAST PETROLEUM
24 Osborn Ave.
Manasquan, NJ 08736
(2,3,4)

MR. COCHRAN
Kuiken Court
North Halden, NJ 07508
(2,3)

COLM ENGINEERING
P.O. Box 208
Audubon, NJ 08106
(4)

JOSEPH CONNOR
RD 2, Box 313
Absecon, NJ 08201
(3)

CONTEX OIL CO.
Route 181
Lake Hopatcong, NJ 07849
(2,3)

COOPER INC.
121 Lorraine Dr.
Berkeley Heights, NJ 07922
(3)

C.P.O. INC.
673 New Brunswick Ave.
Rahway, NJ 07065
(3)

CRAN-TECH PRODUCTS, INC.
P.O. Box 57
Convent Station, NJ 07961
(2,3)

CREIGHTON SOLAR CONTRACTORS, INC.
2733 Nottingham Way
Trenton, NJ 08619
(1,2,4)

CREIGHTON SOLAR CONCEPTS
662 Whitehead Rd.
Lawrence, NJ 08648
(1)

CUSTOM SOLAR ENGINEERING
P.O. Box 965
Eatontown, NJ 07724
(4)

CUSTOM SOLAR ENGINEERING
204 Elm Dr.
Neptune, NJ 07753
(4)

CUSTOM LIVING SYSTEMS
Sand Spring Rd.
Morristown, NJ 07960
(3)

CY/RO INDUSTRIES
859 Berdan Ave.
Wayne, NJ 07470
(1)

JOHN J. DALE PLUMBING
1984 Greenwood Ave.
Trenton, NJ 08609
(3)

D.A.-LOR SERVICE CO.
P.O. Box 2067
Morristown, NJ 07960
(2,3)

DAS SOLAR SYSTEMS
14 Central Ave.
Midland Park, NJ 07432
(2,3,4)

DBA SOLAR EQUIPMENT
52 Iowa Ave.
Paterson, NJ 07509
(1)

DEAL PLUMBING
120 Norwood Ave.
Deal, NJ 07723
(2,3)

ROBERT A. DE MAIO
B7 Maple Ave.
Madison, NJ 07940
(3)

HARRY A. DI FAZIO
40 Oak Ave.
Marlton, NJ 08053
(4)

DREW CHEMICAL CORP.
1 Drew Chemical Plaza
Boonton, NJ 07005
(1)

KIRT DUNHAM
RD 2, Box 416 B
Newton, NJ 07860
(4)

DYNATHERM CORP.
P.O. Box 291
Livingston, NJ 07032
(2,3)

EAI - ELECTRONIC ASSOCIATION, INC
West Long Branch, NJ 07764
(3,4)

EASTERN SOLAR SALES
26 Sherbrooke Pkwy.
Livingston, NJ 07039
(2,3)

ECLIPSE SOLAR ENERGY
28 Kulick Rd.
Fairfield, NJ 07006
(2,3,4)

EDWARDS ENGINEERING CO.
101 Alexander Ave.
Pompton Plains, NJ 07444
(1,4)

GEORGE E. EMERY, PE
601 Riverwood Ave.
Point Pleasant, NJ 08742
(4)

ENERGY EXCHANGE
29 Hudson Terrace
Englewood Cliffs, NJ 07632
(2,3)

ENER G SYSTEMS
P.O. Box 602
84 Elm St.
Westfield, NJ 07090
(2,3)

EVER-READY REFRIGERATION CO.
P.O. Box 1384
Trenton, NJ 08607
(2,3,4)

ERGENICS, DIVISION OF MPD
TECHNOLOGY CORP.
4 William Demarest Place
Waldwick, NJ 07463
(1)

EXPERT AIR CONDITIONING
68 Brotherhood St.
Piscataway, NJ 08854
(3)

FIRST HOME OWNERS POWER
77 North Queen St.
Bergenfield, NJ 07621
(2,3)

FLUIDONICS
Box 130
Convent Station, NJ 07961
(1)

HARRISON FRAKER, ARCHITECT
245 Nassau St.
Princeton, NJ 08540
(4)

PHILIP FRITZE & SONS
10 School St.
Whippany, NJ 07981
(3)

FOLRAY ENERGY SYSTEMS, INC.
380 Prospect Ave. S-5B
Hackensack, NJ 07601
(3)

FOUR POINTS REFRIGERATION CO.
P.O. Box 1828
Point Pleasant, NJ 08742
(2,3)

GENERAL ENGINEERS
737 Marys Dr.
Bricktown, NJ 08723
(3,4)

GENERAL SOLAR HEAT, INC.
P.O. Box 273
Cranford, NJ 07016
(2,3,4)

GENERAL SOLAR HEAT, INC.
162 Jelliff Ave.
Newark, NJ 07102
(2,3,4)

TED GENOLACOMPANY,INC.
88 South 5th Ave.
Long Branch, NJ 07740
(3)

G & G/P & H
21 Winding Rd.
Iselin, NJ 08830
(3)

STEPHEN GIDDIO CONSTRUCTION CO.
225 Lenox Ave.
West End, NJ 07740
(3)

M. GIORDANO PLUMBING & HEATING
22 Rutland St.
Edison, NJ 08817
(3)

JOSEPH GOLAINE ASSOC.
11 Old Stable Rd.
Demarest, NJ 07627
(4)

JAMES GOLDSTEIN & PARTNERS
225 Millburn Ave.
Millburn, NJ 07041
(4)

M. GOLDSTEIN & SON
89 First St.
Elizabeth, NJ 07206
(2,3)

GREGORY WELDING
1118 Baltimore Ave.
Linden, NJ 07036
(2)

GRIBCO MECH. CONSTRUCTION, INC.
P.O. Box 66, Landis Ave.
Vineland, NJ 08360
(3)

WILLIAM HAMILTON, BUILDER
76 Rte 46
Lodi, NJ 07644
(2,3)

WILLIAM R. HAMILTON
MECHANICAL CONT. INC.
P.O. Box 653
Bound Brook, NJ 08805
(3)

HARDEN CORP.
390 Rutherford Ave.
Franklin, NJ 07416
(2,3)

HAVEN ENGINEERING CORP.
10 Countryside Dr.
Livingston, NJ 07039
(3,4)

MICHAEL HAYDEN
51 Ward Pl.
South Orange, NJ 07079
(3)

HCH ASSOCIATES, INC.
P.O. Box 87
Robbinsville, NJ 08691
(1)

HEILEMANN ELECTRIC
127 Mountainview Rd.
Warren, NJ 07060
(1,2,3)

H & H THERMOSTATS
DIVISION/EMERSON ELECTRIC
25 Canfield Rd.
Cedar Grove, NJ 07009
(1)

H & R GREEN CONTRACTOR CO.
5 Emerald Ct.
Toms River, NJ 08753
(2,3)

HOFFMAN PLUMBING, HEATING, AND
AIR CONDITIONING
14 Pleasant Ave.
West Caldwell, NJ 07006
(3,4)

HOLLYWOOD FUEL SERVICE
Broadway & Maple Pl.
Keyport, NJ 07735
(2,3,4)

HPH PLUMBING & HEATING CORP.
445-A Broad St.
Newark, NJ 07102
(2,3)

INDUSTRIAL BERSATHEAM
Box 351
Union, NJ 07204
(3,4)

INDUSTRIAL FABRICATING/ENGINEERING
P.O. Box 802
Freehold, NJ 07728
(2,3)

INFINITY INC.
537 Main St.
East Orange, NJ 07018
(1,2,3,4)

ISELIN AIR CONDITIONING &
REFRIGERATION CO.
7 Headley Pl.
Iselin, NJ 08830
(1,2,3)

JAB ASSOCIATES, INC.
2 E. Northfield Rd.
Livingston, NJ 07039
(4)

JAEGERS SALES & SUPPLY
Dover & Robbins Aves.
Trenton, NJ 08638
(2,3)

JESPA ENTERPRISES
P.O. Box 11
Old Bridge, NJ 08857
(3)

JOHNSON-CRAMER
108 West Main St.
Clinton, NJ 08809
(2,3,4)

J.S.A. ASSOCIATES
128 Monroe Ave.
Edison, NJ 08817
(4)

WILLIAM J. JUNICE
110 Wood Lawn Ave.
Upper Montclair, NJ 07043
(4)

J. KARVEL SALES, INC.
P.O. Box 544
West Paterson, NJ 07424
(2,3,4)

J. GORDON KAVENY, PE
17-19 Grove St.
Montclair, NJ 07042
(4)

DOUG KELBAUGH
70 Pine St.
Princeton, NJ 08540
(4)

KING ROOFING
RD 2, Box 200
Wrightstown, NJ 08562
(3)

LEONARD KOWADLO, PE
182 Valley Rd.
River Edge, NJ 07661
(4)

STANLEY JOHN LACZ
662 Goffle Rd.
Hawthorne, NJ 07560
(4)

JOE LANGON, PLUMBING & HEATING
113 Brahma Ave.
Bridgewater, NJ 08807
(3)

R.E. LEDDEN COMPANY
Aura-Richwood Rd.
Glassboro, NJ 08028
(2,3)

ROGER LEFEFEVRE
95 Larch Dr.
Toms River, NJ 08830
(3)

JOHN LEITH, PE
15 Tier Lane
Roseland, NJ 07068
(3,4)

LENNOX COMPANY
1051 Bloomfield Ave.
Clifton, NJ 07011
(2,3)

LESCO SOLAR SAVINGS
63 Melrose Pl.
Montclair, NJ 07042
(2,3,4)

L&H HEATING SUPPLIES
930 Highway 70
Bricktown, NJ 08723
(2,3)

PAUL F. LOSI, AIA
616 Washington St.
Toms River, NJ 08753
(4)

WAYNE LOVELEE
83 Knollwood Dr.
Murray Hill, NJ 07974
(2,3)

M.R. Lower
RD 2, Box 439
Andover, NJ 07821
(3)

LUMMUS COMPANY
1515 Broad St.
Bloomfield, NJ 07003
(3)

MAJOR AIR CONDITIONING
38 Emily Ave.
Vauxhall, NJ 07088
(3)

MANDALAYA, INC.
Box 330
Atlantic Highland, NJ 07716
(1)

MARSHALL INDUSTRIES
576 Hazlet Ave.
Fort Lee, NJ 07024
(2,3,4)

MARVCO MARKET DEVELOPERS
750 Hamburg Turnpike
Pompton Lakes, NJ 07442
(1)

JIM McCOMBS
36 Glenroy Rd.
Fairfield, NJ 07006
(3)

McNALLY'S FUEL, INC.
3206 River Ave.
Camden, NJ 08105
(2,3)

MEENAN OIL CO.
Rte. 38
Hainesport, NJ 08036
(3)

MEENAN OIL CO., INC.
Rte. 38, Box 205
Mt. Holly, NJ 08036
(2,3,4)

MEENAN OIL CO., INC.
Bay & Letts Ave.
Manahawkin, NJ 08050
(2,3,4)

MEENAN OIL CO., INC.
30 Fort Ave.
New Egypt, NJ 08533
(2,3)

METZLER PLUMBING & HEATING
51 Lincoln Ave.
Fair Lawn, NJ 07410
(2,3,4)

B.J. MEYER PLUMBING & HEATING
44 Mohawk Pl.
Lakewood, NJ 08701
(3)

PRACTICAL SOLAR HEAT
Box 330, 130 Ocean Blvd.
Atlantic Highlands, NJ 07716
(2,3,4)

PRECISION HOMES
2311 W. Marlton Pike
Cherry Hill, NJ 08002
(3)

PRINCETON ENERGY GROUP
245 Nassau St.
Princeton, NJ 08540
(4)

STEWART PRUZANSKY
180 Lafayette Ave.
Passaic, NJ 07055
(2,3)

QUIET AUTO WATER/HEATING CORP.
P.O. Box 9022
Newark, NJ 07104
(1)

REALTY WORLD
Rte. 70 at Medford Circle
Medford, NJ 08055
(3)

R AND D INC.
40 Oak Ave.
Marlton, NJ 08053
(3,4)

REEL-STRONG FUEL CO.
549 Lexington Ave.
Cranford, NJ 07016
(2,3)

R.J. REMM, PLUMBING & HEATING
RD #4, Box 436
North Brunswick, NJ 08902
(2,3)

RETTIG FUEL
162 Jelliff Ave.
Newark, NJ 07103
(2,3)

REYNOLDS PLUMBING
358 North Ave.
Cranford, NJ 07016
(2,3)

JOHN REYNOLDS
42 Mountain Ave.
West Orange, NJ 07052
(3,4)

RHODIA, INC.
1145 Towbin Ave.
Lakewood, NJ 08701
(1)

RICHARDSON ENGINEERING
90 Jersey Ave.
New Brunswick, NJ 08901
(3)

RHEEM MANUFACTURING
P.O. Box N
East Brunswick, NJ 08901
(3)

ROBERT'S PLUMBING & HEATING
219 Fleet Ave.
Edison, NJ 08817
(3)

DONALD C. RODNER, INC.
Box 246
Dayton, NJ 08810
(3)

ROJAC CORP.
360 Clinton St.
Haledon, NJ 07508
(2,3)

CHARLES RUBENSTEIN
45 Laurel Ave.
Linwood, NJ 08221
(2,3)

RUSSELL ASSOCIATES, AIA
303 Claremont Ave.
Montclair, NJ 07042
(4)

DALIM SABDIAL SAU
129 Park Ave.
Plainfield, NJ 07060
(4)

SANTO INDUSTRIES, INC.
724 Bunker Hill Ave.
Lawrenceville, NJ 08648
(1,2,3,4)

JOHN V. MILEWSKI, EXXON RES.
16-0 E. Linden Ave.
Linden, NJ 07036
(4)

KENNETH A. MILLER
15 Willow St.
Chatham, NJ 07928
(3)

M.K. ASSOCIATES
11 Fenamore Dr.
Williamstown, NJ 08094
(1,2,3,4)

MONTGOMERY ENGINEERING CO.
241 Clinton Rd.
West Caldwell, NJ 07006
(2)

MONTVILLE PLUMBING & HEATING
6 Philips Manor Rd.
Towaco, NJ 07082
(3)

MOORE FUELS, INC.
S.E. Boulevard
Newfield, NJ 07732
(3)

M&R MECHANICAL CONTRACTOR, INC.
P.O. Box 435
Highlands, NJ 07732
(3)

NATURAL ENERGY & HEALTH FOODS
Rte. 12, P.O. Box 219
Frenchtown, NJ 08825
(1,2)

NEWFIELD OIL
Southwest Blvd.
Newfield, NJ 08344
(3)

N.J. ALUMINUM
P.O. Box 73
North Brunswick, NJ 08902
(1,4)

N.J. INSTALLERS
511 Roxbury Rd.
Belford, NJ 07718
(3)

N.J. SOLAR SYSTEMS
55A Garretson Ave.
Bayonne, NJ 07002
(2,3,4)

NORKIN ENGINEERING
3 Maple St.
Chatham, NJ 07928
(3,4)

NORTHEAST SOLAR SYSTEMS
RR #1, Box 617
Highland Lakes, NJ 07422
(2,3)

NRG SYSTEMS CORP.
18 Regina Rd.
Morganville, NJ 07751
(2,3)

OMINIDATA INC.
16 Springdale Rd.
Cherry Hill, NJ 08003
(1)

P AND NV CORP.
P.O. Box 38
Lafayette, NJ 07848
(1)

TERRY H. PARKER, AIA
189 Mountain Ave.
Montclair, NJ 07042
(4)

PEMCO INC.
1406 Blackhorse Pk.
West Atlantic City, NJ 08232
(2,3)

JOSEPH M. PENNESI, PE
3 Vermont Court
Lake Hiawatha, NJ 07034
(4)

BILL PETERSON, PLUMBING &
HEATING
186 Park St.
Somerset, NJ 08873
(3)

POSITIVE GROWTH INC.
12 Overlook Ave.
Rochelle Park, NJ 07662
(2,3)

SAYREVILLE PLUMBING & HEATING, INC.
36 Quaid Ave.
Sayreville, NJ 08872
(3)

SCALA & SCALA, HOME IMPROVEMENTS
15 Lord Sterling Dr.
Parsippany, NJ 07054
(3,4)

R.L. SCHLEIN ASSOCIATES
800 Kings Highway, Suite 302
Cherry Hill, NJ 08003
(4)

SCHUMAN SOLAR ENERGY SYSTEMS
44 Hillside Ave.
Hillside, NJ 07205
(1,2,3,4)

S.C.S. INC.
26 Park Pl.
Morristown, NJ 07960
(2,3)

SCIENCE ASSOCIATES, INC.
230 Nassau St., Box 230
Princeton, NJ 08540
(1)

SEABOARD SOLAR SERVICE
561 Lighthouse Dr.
Manahawkin, NJ 08050
(2,3)

SEALED AIR CORP.
Park 80 Plaza East
Saddle Brook, NJ 07662
(1)

SEASHORE SUPPLY CO.
S. Carolina & Mediterranean Aves.
Atlantic City, NJ 08404
(2,3)

SEASHORE SUPPLY CO.
13th & Haven Sts.
Ocean City, NJ 08226
(2,3)

SEASHORE SUPPLY CO.
306 West Wildwood Ave.
Wildwood, NJ 08260
(2,3)

SERVICE SHEET METAL PRODUCTS
Lexington Ave.
Clifton, NJ 07011
(4)

SGL INDUSTRIES
76 Euclid Ave.
Haddonfield, NJ 08033
(1)

SHAW SOLAR ENERGY CO.
419 Essex St.
Hackensack, NJ 07601
(2,3)

SHEFFLER-GROSS CO.
308 Berlin Rd.
Voorhers Twp., NJ 08043
(2,3)

SINGER CONTRACTING CO.
238 Cleveland Ave.
Highland Park, NJ 08904
(3)

SOLAR THERMOGENICS, INC.
112 Alpine Dr.
Closter, NJ 07624
(2,3)

SOLAIR SYNERGY, INC.
5 Hillside Ct. W.
Morris Plains, NJ 07950
(2,3,4)

SOLAR ABUNDANCE, INC.
RD #1
Annandale, NJ 08801
(2,3)

SOLAR BODY, INC.
92 12th St.
Avalon, NJ
(2,3,4)

SOLAR CONSTRUCTION & MAINTENANCE
465 Brick Blvd.
Brick Twp., NJ 08723
(2,3)

SOLAR CONSTRUCTIONEERS
21 Fundus Rd.
West Orange, NJ 07052
(3)

SOLAR DYNAMICS CO.
21-2F Grove St.
North Plainfield, NJ 07060
(3)

SOLAR DYNAMICS, INC.
237 Scotland Rd.
Orange, NJ 07050
(3)

SOLAR-EN
Box 64, Rte. 10
Denville, NJ 07834
(2,3,4)

SOLAR ENERGY SYSTEMS, INC.
1 Olney Ave.
Cherry Hill Industrial Center
Cherry Hill, NJ 08003
(1,4)

SOLAR ENGINEERING GROUP, INC.
580 Alexander Rd.
Princeton, NJ 08540
(3,4)

SOLAR & ENVIRONMENTAL SYSTEMS, INC.
P.O. Box 442
Neptune, NJ 07753
(2,3,4)

SOLAR EXCHANGE
4 Biscayne Ave.
Absecon, NJ 08201
(3)

SOLAR & GEOPHYSICAL ENGINEERING
Box 576
Sparta, NJ 07871
(2,3,4)

SOLAR HEATING & COOLING CO.
1540½ Pennington St.
Trenton, NJ 08618
(2,3)

SOLAR HEATING OF NEW JERSEY
811 Wynetta Pl.
Paramus, NJ 07652
(1,2,3,4)

SOLAR INC.
7000 Blvd. E., Suite 39G
Guttenberg, NJ 07093
(2,3)

SOLAR INDUSTRIES INC.
Monmouth Airport Industrial Park
Farmingdale, NJ 07727
(1)

SOLAR KINETICS, INC.
2005 Highway # 35
Oakhurst, NJ 07755
(3,4)

SOLAR LIFE CO.
404 Littincott Ave.
Riverton, NJ 08077
(1,2,3,4)

SOLAR RICH BUILDERS
69 N. Maple Ave.
Marlton, NJ 08053
(2,3)

SOLAR RICH BUILDERS
55 Hanover St.
Pemberton, NJ 08068
(2,3)

SOLAR SAVINGS CO.
78 King St.
Kearny, NJ 07032
(3)

SOLAR SERVICES CORP.
306 Cranford Rd.
Cherry Hill, NJ 08003
(4)

SOLAR SHELTER
64 Lenape Trail
Medford, NJ 08055
(4)

SOLAR SYSTEMS CO.
103 Jackson Ave.
North Plainfield, NJ 07060
(2,3,4)

SOLAR TECHNOLOGY INDUSTRIES, INC.
22 Linden Ave.
Irvington, NJ 07111
(2,3)

SOLAR THERM
P.O. Box 12
Netcong, NJ 07857
(1,2,3)

SOLAR WORKS, INC.
P.O. Box 177
Princeton Jct., NJ 08650
(2,3)

SOLARAD-DIVISION MULTI-RESEARCH
Highway #35
Keyport, NJ 07735
(1,2,3)

SOLARON CORP.
153 Walt Whitman Blvd.
Cherry Hill, NJ 08003
(1,2)

SOLENCO CORP.
175 River Rd.
Flanders, NJ 07836
(2,3,4)

SOLAR INC.
7000 Blvd. East, S#39G
Gutterberg, NJ 07093
(1)

SPARTAN OIL CO.
Box 828
Dover, NJ 07801
(2,3)

SPEER AIR CONDITIONING, INC.
Box 844, Rte. 80
Denville, NJ 07834
(2,3)

SPOTSWOOD HEATING & COOLING
20 James St.
Spotswood, NJ 08884
(3)

SSP ASSOCIATES
704 Blue Hill Rd.
River Vale, NJ 07675
(1)

ROBERT STOVEKEN
S-3 2824 Kennedy Blvd.
Jersey City, NJ 07306
(3)

JOSEPH STURN
79 La Grande Ave.
Fanwood, NJ 07023
(3)

SUN-ASSIST
P.O. Box 927
Monroeville, NJ 08343
(3)

SUN POWER, INC.
P.O. Box 392
Whitehouse Station, NJ 08889
(2,3)

SUNRISE SOLAR SYSTEMS
Candlelight Dr.
Montvale, NJ 07645
(3)

SUN SOLAR HEATING INC.
429 E. Main St.
Bound Brook, NJ 08805
(2,3)

SUN SOLAR HEATING INC.
53 Elm St.
Westfield, NJ 07090
(2,3)

SUNSHINE ENERGY PRODUCTS
4 E. New Jersey Ave.
Somers Point, NJ 08244
(2,3)

SUNSHINE STRUCTURES
383 N. 3rd St.
Surf City, NJ 08008
(2,3,4)

SUN TRAP DESIGN
SOLAR ENERGY SYSTEMS
P.O. Box 696
Princeton Jct., NJ 08550
(2,4)

ROBERT E. SURBRUG, INC.
3462 E. Thistle Ave.
Toms River, NJ 08753
(3)

SWAN POOLS,SOLAR SYSTEMS, INC.
18 Dartmouth Dr.
Delran, NJ 08075
(3)

TIMBER CREEK OIL CO.
634 N. Blackhorse Pk.
Runnemeade, NJ 08078
(3)

TIMBERWARE PRODUCTS
17 Rte. 206
Stanhope, NJ 07874
(2,3)

THOMAS FUEL CORP.
702 Ramsey Ave.
Hillside, NJ 07205
(3)

TRAVISANO'S
1131 Collidge Rd.
Elizabeth, NJ 07208
(3)

TRENTON HEATING & COOLING
101 Rutherford Ave.
Trenton, NJ 08618
(2,3)

TRI-BORO ENVIRONMENTAL SERVICE
P.O. Box 15
Bound Brook, NJ 08805
(2,3)

TRI STATE SOLAR
14 Pleasant Ave.
West Caldwell, NJ 07006
(3,4)

TOMS RIVER SUPPLY COMPANY, INC.
320 West Water St.
Toms River, NJ 08753
(2,3)

TUGGLE'S OIL BURNER SERVICE
166 Hillcrest Ave.
Somerset, NJ 08873
(3)

UNISOL ENERGY CORP.
230 Verona Ave.
Newark, NJ 07104
(2,3)

UNITED ELECTRIC
317 Cummings Ave.
Trenton, NJ 08611
(2,4)

UNIVERSAL POWER, INC.
P.O. Box 339
Island Heights, NJ 08732
(1,2,3,4)

URBANA-ENERGY
108 Jackson St.
Trenton, NJ 08611
(3,4)

U.S. LAND DEVELOPMENT CORP.
1180 Rte. 46
Parsippany, NJ 07054
(3,4)

VAILSBURG PLUMBING
30 Baker Rd.
Livingston, NJ 07039
(2,3)

WAGNER'S HEATING CO.
38-40 Highway 22
Clinton, NJ 08809
(3)

WALES-DARBY INC.
1880 Morris Ave.
Union, NJ 07083
(2)

WALLACE SUPPLY CO.
N.E. Blvd. & Elmer St.
Vineland, NJ 08360
(2,3)

MALCOLM WELLS
Box 183
Cherry Hill, NJ 08002
(4)

R.G. WERDEN & ASSOC.
714 Stanley Terr.
Roselle, NJ 07203
(2,3)

ROBERT G. WERDEN
9 Colonial Ave.
Marlton, NJ 08053
(4)

WIENER & THALER
17 Academy St.
Newark, NJ 07102
(4)

WILHELMS CONSTRUCTION
119 Division St.
Elizabeth, NJ 07206
(2,3)

WILLIAM TORIELLO
RD #1, Box 454
Branchville, NJ 07826
(2,3)

WILLIAMSON CONSTRUCTION CO.
P.O. Box 2244
Princeton, NJ 08540
(2,3,4)

J.B. WRIGHT, PLUMBING & HEATING
55 Madison Ave.
Trenton, NJ 08619
(3)

W & W DESIGN & MANUFACTURING
1 Garfield Sr.
Linden, NJ 07036
(1)

W.W. SOLAR SUPPLY CO.
P.O. Box 403
Hainesport, NJ 08036
(2,3)

W & W SOLAR SYSTEMS, INC.
399 Mill St.
Rahway, NJ 07065
(2,3)

ZAGATA FABRICATOR
33 Brookside Ave.
Sayreville, NJ 08872
(1)

UTILITIES

This list contains the electric and gas utilities in New Jersey. The list is presented in alphabetical order.

ELIZABETHTOWN GAS COMPANY
One Elizabethtown Plaza
Elizabeth, NJ 07207
(201) 289-6400

JERSEY CENTRAL POWER & LIGHT COMPANY
Madison Ave. & Punch Bowl Road
Morristown, NJ 07960
(201) 455-8200

NEW JERSEY NATURAL GAS COMPANY
601 Bangs Avenue
Asbury Park, NJ 07712
(201) 988-2800

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
80 Park Place
Newark, NJ 07102
(201) 273-7000

SOUTH JERSEY GAS COMPANY
One South Jersey Plaza
Folsom, NJ 08037
(609) 561-9000